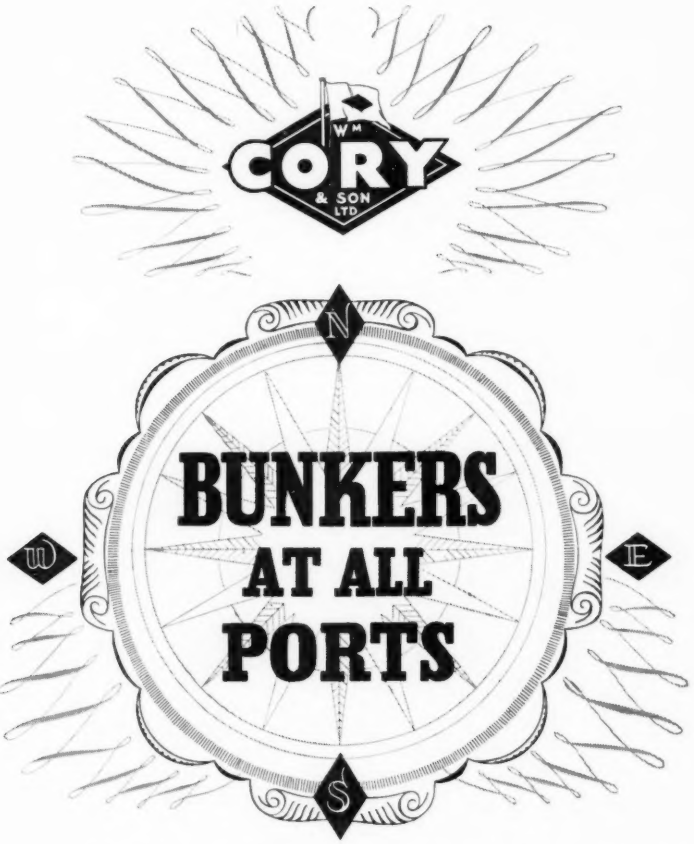
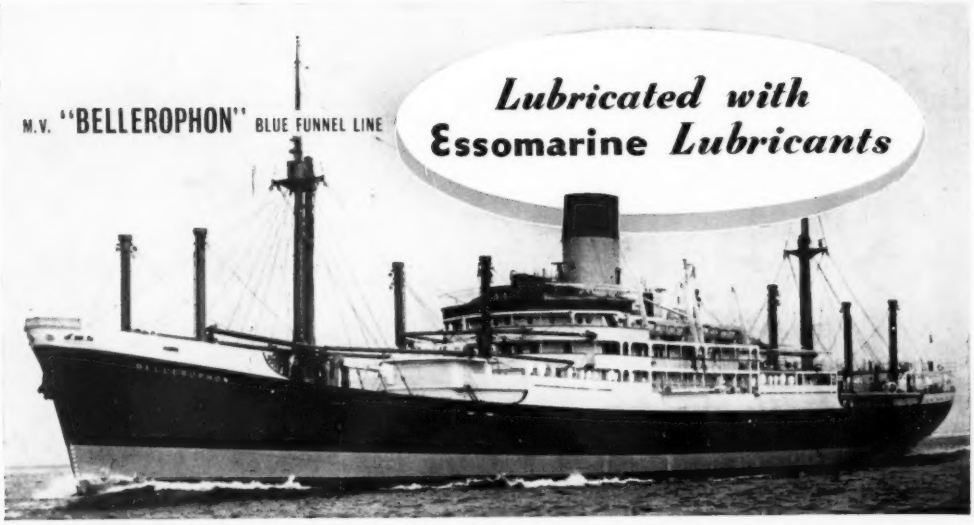
The SHIPPING WORLD

AND SHIPBUILDING & MARINE ENGINEERING NEWS

VOL. CXXIV No. 3015 WEDNESDAY, APRIL 11, 1951 Price 1/6



CORY BUILDINGS • FENCHURCH ST • LONDON • E.C.3



Esso

A World-Wide Service

FOR BUNKER & MARINE DIESEL FUELS AND Essomarine LUBRICANTS

THE BRITISH MEXICAN PETROLEUM COMPANY, LIMITED.

16, CHARLES II STREET, LONDON S.W.1.

Telephone: WHItehall 2134 *Cables:* "Bunkeresso" London

TYNE PLYWOOD WORKS

LIMITED

WILLINGTON QUAY
WALLSEND,
NORTHUMBERLAND

MANUFACTURERS OF PLYWOOD
of all Descriptions

●

Telegraphic Address
"OKOUME WALLSEND"

Telephones:
Wallsend 64044/6

REPAIRS ON THE MERSEY

6 PRIVATE GRAVING DOCKS
ALL ENTERED FROM RIVER

GRAYSON, ROLLO & CLOVER DOCKS LTD.

WORKS AT **LIVERPOOL · BIRKENHEAD · GARSTON**

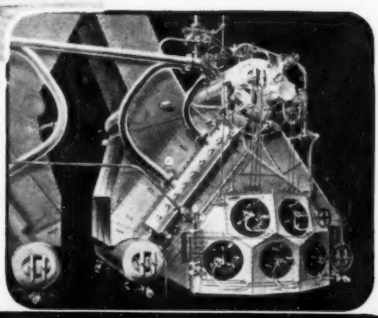
Head Office: **SANDHILLS, LIVERPOOL**

OIL TANK CLEANING BY THE WHEELER PROCESS

THORNYCROFT WATER TUBE BOILERS

4,400-ton, 18-knot Cargo and Passenger Ship

for Passenger and Cargo Ships



Fitted with superheater and having single-sided uptake, the Thornycroft Boiler is particularly suitable for dual side-by-side installation in the medium types of vessel where stokehold space is restricted and light weight is of prime importance. The generating tubes offer a very large surface to furnace heat whilst avoiding high temperature in the refractory lining, and the downcomer tubes ensure good circulation. All tubes slope sufficiently to allow solid matter to fall into the lower drums and are without sharp bends to facilitate cleaning. The Thornycroft superheater has straight-through tubes which are completely self-draining and venting and can readily be cleaned or renewed.

JOHN I THORNYCROFT & CO LIMITED · WOOLSTON WORKS · SOUTHAMPTON

ALONG THE WAY OF . . . *TWA*

You Can Ship Almost Anything Anywhere

by TWA AIR CARGO

SPARES, OPTICALS, TEXTILES, . . . all are safely and quickly shipped overseas at low cost via TWA all-cargo planes to U.S.A. and many other countries.

TWA—the modern way to ship

TWA all-cargo flights depart every week from important industrial centres . . . assure prompt deliveries from these and connecting cities to any point in U.S.A. Low rates. Fast service. Whenever you have a shipping problem . . . call TWA.

When You Ship via TWA

YOU SAVE MONEY—crating, insurance, warehousing.
YOU SAVE TIME—days, weeks, even months.
YOU SAVE WORK—simplify your shipping problems. Make one call . . . get one air waybill, one invoice.
YOU INCREASE SALES—shipments arrive fresh . . ahead of competition.

See your shipping agents or call TWA today.

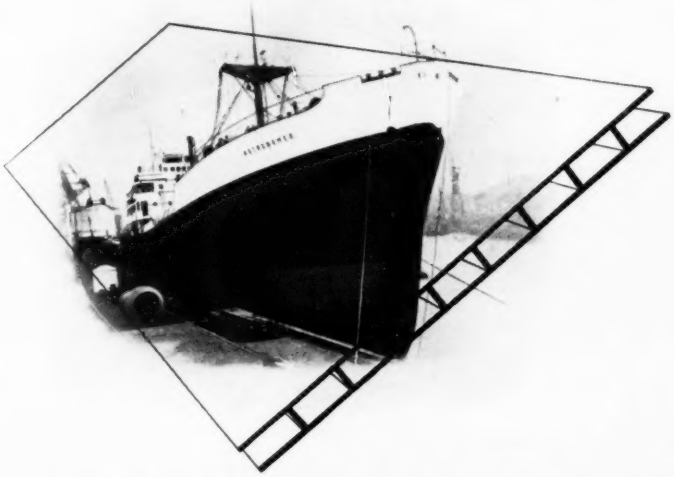
TWA

TRANS WORLD AIRLINES

U.S.A. . EUROPE . AFRICA . ASIA

All TWA flights carry Air Cargo and Air Mail

200 PICCADILLY, LONDON, W.1. Tel : REGent 3211



ALL ABOARD AGAIN!

For all bulkheads aboard the ship, "HOLOPLAST" specified again.

THE NEW VESSEL
"ASTRONOMER"
Built for T. & J. Harrison Ltd., by Wm. Doxford & Sons Ltd., Sunderland.

★ ★ ★

EASY TO WORK AND FIT
The shipyard joiner can cut, saw, plane or drill the "HOLOPLAST" panel with his ordinary wood-working tools.

Its lightness and easy manipulation saves time and labour.

HOLOPLAST

★ *No material licences required.*

Manufactured by : HOLOPLAST LIMITED.
Sales Office : 116 VICTORIA STREET, LONDON, S.W.1.
Tel : Victoria 9981 & 9354 7

Head Office & Works : New Hythe, Nr. Maidstone, Kent.
Tel : Aylesford 7361.

"Get me a seat on Sabena"

. . . that is the call of experienced air travellers, who know also that SABENA is the speediest and most satisfactory way of sending goods from London or Manchester to every important trading centre in the world.

Freight by Sabena saves packing and insurance costs, reduces risk of damage and pilferage, brings faster repeat orders, making for quicker turnover and greater profit.

Use Sabena passenger and FREIGHT Services to Europe, South Africa, Congo, U.S.A.

SABENA BELGIAN AIR LINES

205, REGENT STREET, LONDON, W.1. (Mayfair 8292)
or 32, DEANSGATE, MANCHESTER 3. (Deansgate 6956)

Gets Freight There Fastest

SOUTH AMERICA BY

AEROLINEAS ARGENTINAS
(ARGENTINE AIRLINES)

MINISTERIO DE TRANSPORTES DE LA NACION

For Rates and Schedules to South America please apply to your Freight Agent—or direct to:

AEROLINEAS ARGENTINAS, 42 BROOK STREET, LONDON, W.1. TEL: REG 6940

REPAIRS on the BRISTOL CHANNEL

MOUNTSTUART DRY DOCKS

LIMITED.

CARDIFF	-	Mountstuart Dry Docks Channel and Bute Dry Docks
NEWPORT	-	Eastern Dry Docks Tredegar Dry Dock
BARRY	- -	The Barry Graving Dock and Engineering Co., Ltd.
AVONMOUTH		Works adjoin Public Dry Docks.

SPECIALLY EQUIPPED FOR DIESEL ENGINE REPAIRS

REPAIRING BERTHS & JETTIES

Head Office : Cardiff.

Telegrams : "Mountstuart." 'Phone: 5103

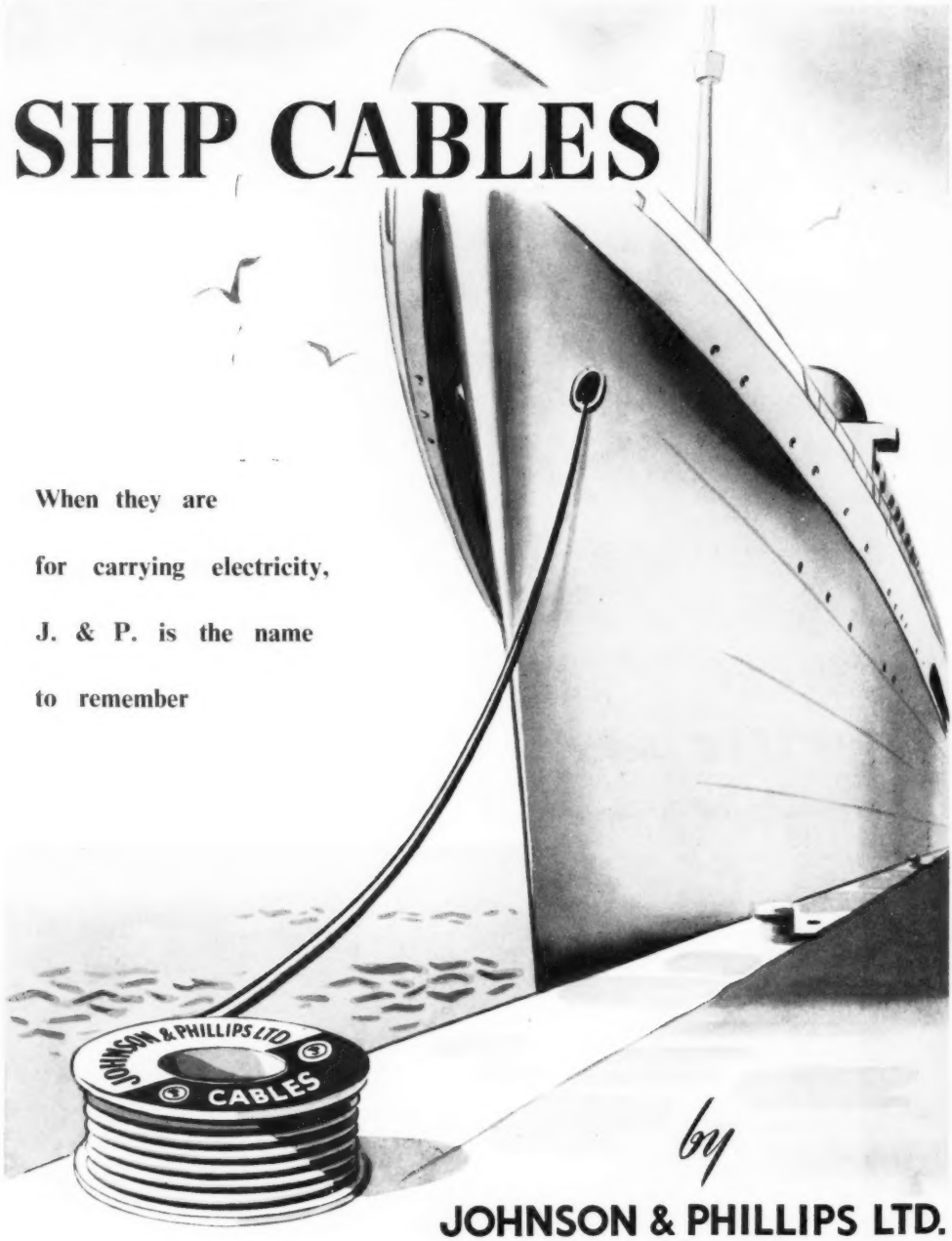
to meet specific needs . . .

The "Bristol" aircraft and engine production programme provides for world-wide air-line needs . . . long-range trans-oceanic air-liners . . . medium-range aircraft primarily for the Empire routes . . . also freight-planes and helicopters . . . "Bristol" sleeve-valve engines and turbines continue to be among the most widely used power-units in the aircraft industry.

THE "Bristol" AEROPLANE COMPANY LIMITED · ENGLAND

B

SHIP CABLES



When they are
for carrying electricity,
J. & P. is the name
to remember

by

JOHNSON & PHILLIPS LTD.

CHARLTON, LONDON. S.E.7

The mark that means that "little more" in quality

The SHIPPING WORLD

AND SHIPBUILDING & MARINE ENGINEERING NEWS

The Oldest Weekly Journal devoted to Shipping, Shipbuilding, Marine Engineering, Shiprepairing, Insurance and Finance

FOUNDED 1883

Chairman and Managing Director of The Shipping World, Ltd. :—SIR ARCHIBALD HURD

Editor :—PETER DUFF *Managing Editor* :—RONALD KENDALL, M.C.M.S., A.M.I.N.A. *Advertisement Manager* :—M. B. FIELD

Annual Subscription 70s.

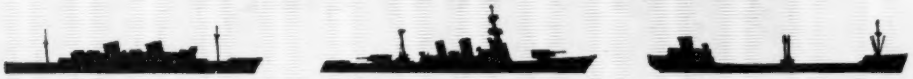
Head Offices : 1, Arundel Street, London, W.C.2. (Temple Bar 2523)
Telegrams : "Shipping World," London

Northern District Manager : W. S. Wilson, M.I.E.E., 27 Exchange Buildings, Newcastle-on-Tyne. Telephone : Newcastle 27078

Vol. CXXIV. **WEDNESDAY, APRIL 11, 1951** **No. 3015**

The State and Industry	337	Round the Shipyards	350
Current Events	337	Recent Technical Developments	350
On the "Baltic"	341	Double-Ended Ferry for Ceylon	351
North of England Shipowners	342	Recent Publications	352
Taxation of Trading Profits	342	Diesel Tug for Copenhagen	353
Packaging for Export	343	Official Notices	353
The De Havilland Comet	345	Pictures	354
Air Transport and the Charter Companies	347	New Contracts, Launches, Trial Trips	355
Coal and Oil	349	Maritime News in Brief	356

Ship after Ship after Ship



is fitted with

"CAPOSITE"

PREFORMED ASBESTOS INSULATION

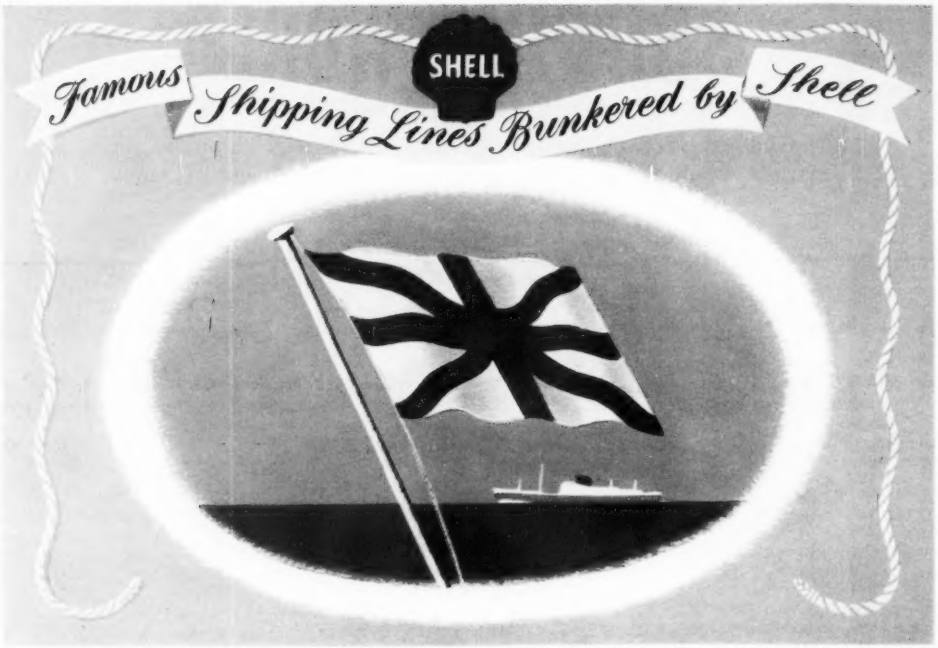
It combines most efficiently SCIENTIFIC HEAT CONTROL with FIRE PROTECTION and SOUND INSULATION

- *It's high efficiency is permanent*
- *It is unaffected by water, moisture or steam leaks*
- *It has great structural strength, but light weight*
- *And—first costs are low*

LET US GIVE YOU THE FACTS

THE **CAPE ASBESTOS** CO. LTD.

114-116 Park Street, London, W.1.



PORT LINE

Formerly the Commonwealtn and Dominion Line, Port Line Limited is the amalgamation of four family businesses : Tyser and Company, The Star Line of J. P. Corry and Company, part of the Indra Line of T. B. Royden and Company, and the Anglo-Australasian Steam Navigation Company founded by Wm. Milburn and Co. The Commonwealth and Dominion Line fleet consisted originally of twenty three steamers, all of which operated in the Australian and New Zealand trade. In 1925 the Company had their first two motor ships built, and since then all vessels built to their order have been propelled by internal combustion engines.

The names of the ships all begin with the word "port", a tradition started by the Anglo-Australasian Company and adopted by the amalgamation in its early days ; although the name of the Company was not changed to Port Line Ltd. until 1936.

The greater part of the cargo space in Port Line ships is insulated for the transport of perishable goods. In addition, a few passengers are carried in the regular service to Australia and New Zealand from the United Kingdom and Europe, also between eastern ports of the U.S. and Canada. The ships vary in size from about 6,000 to 12,000 gross tons.

At this date the Company owns and operates a fleet of twenty five vessels, with three new ships on the stocks.

SHELL WORLD WIDE BUNKERING SERVICE

THE SHIPPING WORLD

THE STATE AND INDUSTRY

MINISTERS have now made it plain that they intend to remain in office as long as they can command a majority, however small, in the House of Commons—until, in short, such time as they consider conditions are favourable for an appeal to the country. Mr. Emanuel Shinwell's recent statements suggest that private enterprise will continue to be the target of the Government's attack. He has declared that while he and his colleagues are in office, if they are of opinion that it is necessary, they will proceed with legislation "much more vital, much more fundamental than any in the past 12 months." That is not as surprising a statement as those who are unfamiliar with the Fabian tactics, which the Government has adopted, might imagine. The Prime Minister once remarked that State Socialism and Free Enterprise could not exist side by side. The Government's aim is to establish what is called a Welfare State, all the principal industries, not excluding shipping and shipbuilding, being owned, financed and administered by the State. What will happen then? "Once the Government becomes an employer or in any other way involved in labour control it no longer holds the balance between conflicting interests. It immediately becomes the most powerful interest of all with its own axe to grind and its own face to save. Undoubtedly this fact is operating to the disadvantage of the workers and to the detriment of industrial peace." Those are the words of Mr. Philip Fothergill, president of the Liberal Party. They suggest the peril that lies ahead for all engaged in industry, managements and workers.

The leaders of the Socialist party may miscalculate their chances at the General Election and be defeated. But, whether in opposition or in office, they will pursue their policy, presenting a united front, while private enterprise, except insofar as the Federation of British Industries is concerned, has so far not done so. Industrial leaders, not themselves immediately threatened, have been inclined to stand aside, protesting that in matters of business, they are not party politicians. On the other hand, the greater proportion of the men and women in the factories, shipyards and workshops are in trade unions with left-wing views. They supply the party with funds either by trade union levy or payments by the co-operative societies to which they belong, or both, for many members of the latter pay two levies. The Socialist party has at its disposal, flowing in steadily throughout the year, more money for political activities of various kinds, including the advocacy of the nationalisation of more industries, than the defenders of private enterprise. The Prime Minister, with great dexterity, has managed to keep his party together during the years that he has been at its head and there is no sign of a breakaway. Some of his supporters are in favour of more extreme measures than have yet been adopted, but they are assured, by direct pledge or by implication, that if they will be patient, the party, by pursuing the Fabian policy of gradualness, will reach the goal that they wish to gain. The position today is that the fellow travellers of the Communists do not like rearmament because their sympathies lie with the Soviet. But if, in spite of rearmament, they can be assured of a majority in the House of Commons as a result of an appeal to the electors, which will support legislation "much more vital, much more fundamental, than any in the past twelve months," they will be well content to trust their leaders. They have shown that they can act as well as talk. By the nationalisation of the basic industries, coal, steel, inland transport, a third of the country's docks and a considerable number of ships which belonged to the great railway companies, they have got a stranglehold on all industries.

Private enterprise is dependent on the goods and services of the nationalised industries which are monopolies, charging what they like. In fact, the Socialists can congratulate themselves on the progress which they have already made towards what they regard as ideal conditions in this country. It is true that nationalisation has resulted so far only in higher costs and mounting losses, and there has been no sign that the workers concerned are ready to subordinate their personal interests to those of the community as a whole. But, nevertheless, there is no intention to abandon nationalisation. On the contrary, the resolve is to continue on the same path. No industry is, in fact, safe from attack. Its efficiency under private enterprise will not, as the fate of the steel industry proved, be an adequate defence against confiscation with or without compensation.

Current Events

Rearmament and Shipbuilding

A GREATLY accelerated and enlarged rearmament programme has now become the first objective of the British Government's economic policy, according to the *Economic Survey for* 1951. As far as shipbuilding is concerned, a far greater proportion of naval work will have to be carried out in the shipyards and engine works than last year. Of the £360 million to be spent on defence requirements in the engineering industries in 1951-52, some £36 million will go on shipbuilding and marine engineering, and in the succeeding years large sums will be spent on naval building and conversion. At the same time, the shipbuilding industry is reaching a peak of activity for merchant ship work, for at the end of 1950 there were merchant ships under construction and on order totalling some 3,400,000 tons gross, and in the first two months of this year further orders were received for over 1,000,000 tons. The

industry has, in fact, sufficient work to keep it fully occupied until at least the end of 1953. Some of the smaller yards, perhaps, may not have such swollen order books, but there are prospects for them of further orders for naval work. Much of the additional sums to be spent on naval work, too, may be expected to go to the shiprepairing establishments, which have now overtaken the arrears of maintenance on merchant ships which accumulated during and after the war. The volume of work in all the maritime industries, therefore, is likely to be fully maintained for several years ahead. Although this may be regarded as highly satisfactory, it must not be forgotten that other industries playing vital parts in the defence programme will make heavy inroads into the supplies of materials needed for shipbuilding. If there is not enough to go round, systems of priority will have to be reintroduced, and there may be some anxiety about how the shipbuilding industry will fare in this respect. It is logical, however, for the shipbuilding industry to be given the utmost priority in regard to supply, not only for naval work but for merchant shipbuilding also.

Importance of Exports

As the *Economic Survey* makes clear, rearmament is not the sole objective of the Government's rearmament policy. "The potential military strength of this country depends on a well-equipped industrial system, a healthy population at home and an ordered balance of overseas payments. It is vital that our capacity to export should not be seriously impaired, for a flourishing export trade is an indispensable foundation of an economy so largely dependent on imports." One-third of the merchant shipbuilding work in Britain is for export, much of it to be paid for in still needed hard currencies. Nothing must be allowed to obscure the importance of shipbuilding as an export industry. British shipping, too, is one of the most important earners of foreign exchange, and the *Economic Survey* estimates that it earned £111 million net in 1950, compared with £83 million in 1949 and £76 million the year before that. But many merchant ships are becoming obsolete, and a steady and even expanding rate of replacement must be maintained if the industry's earnings are to be kept up.

Growing Competition

ANOTHER DANGER arising from the new situation in which the British shipyards may find themselves before long is that delivery dates will be prolonged, that prices will rise unduly, both for labour and materials, and that the export potentiality of the industry will be reduced. Overemployment may have an adverse effect on the shipyard workers, giving them a false feeling of security and a lack of urgency in their performance. On the contrary, the reverse should be their duty, in their own as well as the nation's interests. The faster the work can be done, without meticulously observing outworn restrictive practices, the more chance there will be of more orders to come, provided that the highest standards of British craftsmanship are maintained. The output capacity of the British shipbuilding industry, modernised as it has been in recent years, is fully capable of absorbing the extra work which it is now called upon to handle, provided that it can rely on an adequate and regular flow of materials and components. It does not require to inflate its labour force to the extravagant levels of the Second World War, provided that the more economical numbers at present employed in the shipyards and engineering shops can increase their productive effort more in accordance with that of their competitors overseas. They must not be allowed to forget that they are engaged in an international industry. They depend for their employment to a great extent in the long run on orders from overseas, which will go to foreign shipyards if British yards cannot give the best delivery times and prices, as well as the best workmanship.

Shipbuilding in Germany

THE QUARTER from which British shipyard managements and workers may now fear increasing competition is Germany, whose shipyards have just been released from any restrictions on the building of ships either for German or foreign owners. Since November 1949, German shipyards have been restricted to building ships not in excess of 7,200 tons gross and of 12 knots speed, with a few exceptions, although vessels built for export were later released from these limitations, apart from passenger ships. Now the German yards are permitted to build ships of any type and size, speed or number, not only for export but also for German shipowners. The total capacity of the German shipbuilding industry still remains under the control of the Allied High Commission for Western Germany, but slight increases in the productive capacity of any yard may be permitted at the discretion of the Commission, and in time there is no doubt that even this restriction will disappear. No vessels of warlike design may be built in Germany as yet, and this means that the German shipbuilders will be free to concentrate their efforts on building up the German merchant fleet and on going out among foreign shipowners to solicit their orders. With British shipbuilding capacity fully occupied for so long ahead, and the danger, inherent in the present situation, that British output will be hampered by the defence programme, the German yards may be able to offer attractive delivery dates; while their workers are willing to work longer hours for lower wages and with fewer restrictive practices, so that they may well be rewarded by large numbers of orders. Much the same arguments apply to the Japanese shipyards, which are now actively engaged not only in rebuilding the Japanese merchant fleet, but also in building ships for potential customers of Great Britain. The Americans, it is noticeable, are supporting proposals that Japanese shipbuilding should be expanded, and there is a grave danger that when British shipbuilding emerges from its present flood of work two more intensive competitors, Germany and Japan, will be well established in the export shipbuilding market. These are long-term factors which the present situation must not be allowed to obscure.

The Shipping Position

BRITISH SHIPOWNERS are naturally anxious that the demands of the rearmament programme should not be allowed to interfere with the speed of delivery of the replacement tonnage which they have ordered from the shipyards in large numbers in the last six months. This matter was referred to by Mr. Frederick W. Jones on his election as chairman of the Cardiff & Bristol Channel Shipowners' Association. He drew attention to the remarkable change which had occurred in the shipping position as a result of the war in Korea and subsequent developments. It was said that a 3 per cent margin was the difference between a boom and a slump in shipping, and before the Korean war there was no doubt that there had been 3 per cent more ships than cargoes. The question now was whether or not the position would be again reversed when the tonnage at present under construction was brought into service. Although some pessimists foresaw a swift recession, Mr. Jones did not subscribe to that view. It had to be remembered, he said, that a large proportion of the tonnage afloat today was old and uneconomical and would have been broken up already if it had not been for the sudden development of a world shortage of shipping. The world's population, he pointed out, was increasing by some 20,000,000 people per year, and medical science was helping to prolong the span of life. The standard of living of the world was improving daily, and it was not unreasonable to assume that the world's requirements would continue to increase, with the result that more ships would be required than ever before in normal times.

Disruption of Australian Traffic

So grave are the delays to which ships loading and discharging in Australia and New Zealand are now subject that the liner conference engaged in the Continent/Australia trade have seen fit to issue a notice to shippers explaining the position. The fundamental cause of the trouble is that owing to excessive delays in Australian ports ships are not returning to Europe in time to fulfil their scheduled sailings. Faced with this difficulty, the lines would in normal times charter extra tonnage to fill the gaps, but today that cannot be done, firstly because there is insufficient tonnage offering on the market, and secondly because the rates at which the few ships available can be chartered are so high that it is impossible for the lines to take them and put them on the berth at tariff rates. The lines propose, however, to take a limited number of additional ships on charter, as opportunity occurs, and to offer these to shippers on the basis of tariff rates plus a special surcharge, which will be calculated in respect of each ship to cover the cost of the charter. The number of ships available for charter is at present so small that it will not be possible to berth more than an occasional ship on these terms, and it is feared that even with this assistance there will be serious delay in getting cargo away. Meanwhile, Mr. Arthur Deakin fears that attempts will be made in British ports to hold up the *Rippingham Grange* and other ships which were loaded in New Zealand by Service personnel when they arrive on this side. This would fall in with the Communist plans to disrupt shipping on the waterfront whenever and wherever possible.

Shipbuilding Profits

Two important shipbuilding companies, Swan, Hunter & Wigham Richardson, Ltd., and William Gray & Co., Ltd., have lately reported on their trading experience in 1950. The pattern is the same in both cases. The group trading profits of the former company declined from £2,151,000 to £1,929,000, while those of the other fell from £447,000 to £308,000. The Swan, Hunter results caused a sharp depreciation in the shares of that company and a hesitant tone has developed in the shipbuilding equity market. As shipbuilding shares have outstripped all others in the advance in equity values of the past months, a pause for consolidation of the position will be by no means unhelpful. In any event, the results of these two firms are no more than a record of the past. The shipbuilding industry encountered many difficulties last year. Costs rose under all heads during the year and especially during its latter half. Some companies hopeful of a decline in costs, had resumed the quoting of fixed prices for their products. Trading profits were, in these circumstances, squeezed into a smaller dimension. The position has, happily, changed for the better. Costs, it is true, are still rising and raw material and labour supplies may be inadequate, but order books are full and fixed contract prices have reluctantly been discarded. A growing inflow of orders for dry cargo tonnage is helping to correct the overloading of the order books with tanker tonnage, and should be stimulated by the setting up of the new finance company which, under the auspices of the Shipbuilding Conference and of leading City institutions, will aid in the financing of new construction. Shipbuilding profits should, therefore, be moving up and seem likely to be held at a satisfactory level for at least two years ahead.

The Capital Issues Committee

Criticism of the restraining and seemingly illogical activities of the Capital Issues Committee is growing apace. Feeling has been exacerbated by its rejection of an application by Associated Electrical Industries, Ltd., to issue 1,000,000 ordinary £1 shares to ordinary stockholders in the proportion of one new share for each unit held at a price of £2 per share. The C.I.C. works very much in secrecy and never reveals the motives that underlie its decisions. It is thought, however, that on this occasion the C.I.C. has cavilled at the size of the "bonus element" in the issue, for the current market value of the A.E.I. ordinary £1 units is about 87s. In any event the company is now compelled to shelve its new financing proposals "until conditions permit the ordinary stockholders to follow their present investment and the fortunes of the company without paying an excessive premium for new shares." And, by reason of fiscal harshness, the company has also been obliged to drop its scheme to give employees a direct incentive by way of participation in profits through a holding of shares in the company. The City is increasingly being driven to the conclusion that the C.I.C. is finding itself unable to frame its decisions on financial and economic grounds alone. So long as the C.I.C. works behind closed shutters suspicion must grow. It is a body composed of business and professional men of high standing in their respective spheres. The time has come when it should either cease its labours—no good case can be made out for its continuing existence—or should publicly state its policies.

The Anglo-Argentine Muddle

The historian of the future will quote the trouble which has developed between Great Britain and Argentina as a glaring example of the mistake of mixing politics with business, for the beginning of the whole miserable quarrel was the decision of the British Government to resort to bulk buying. The Government of the Republic then decided that it would adopt bulk selling. The business men, experts of long experience, were thrust aside and the interests of shipowners, who had built costly refrigerated tonnage for the carriage of meat, were ignored. The Ministry of Food, acting in association with the Treasury, was to show the world how such negotiations should be conducted. The representatives of the two countries were soon involved in a series of disputes, with the result that shipments of meat were suspended in July last, with consequent heavy losses of revenue by the shipowners, for which they ought, in justice, to be compensated. At that time, an offer of beef at £97 per ton was rejected. Over a month ago Whitehall suggested that talks should be resumed and a mission was sent to Buenos Aires to discuss the terms of the existing trade agreements in the light of the new situation. It was soon discovered that Mr. John Edwards, of the Treasury, who is not an expert, it need hardly be added, in commercial matters, and the negotiators on the other side had very divergent views on many matters. He resorted to yet another bluff, threatening to break off negotiations and sail home. He did not, of course, leave, nor did his threat have much influence on the representatives of the Argentine Government, though they were as anxious for an agreement on their terms as he was anxious to secure it on his terms. It was obvious from the first that he would have to pay much higher prices for meat and accept stiffer terms in other matters than might have been secured last summer. But he was obviously not willing to admit defeat. So the talks have been dragging on. A factor which has had a great influence on the negotiations has been that in the past the Argentine meat surplus available for export amounted to 50 per cent; it is now only 15 or 20 per cent, and this change explains, as President Peron has stated, "why we refused to sell, except at reasonable prices."

The Persian Trouble

That the Soviet has been responsible for the troubles in Persia, which threatens the financial interests in that country, as well as for the unrest in Iraq, was apparent from the first. For weeks past the Russians have been endeavouring to intimidate the Persian Government and people, the former Chief of the General Staff having been moved to the frontier while *agents provocateur*, disguised as peasants, have been stationed in key points in the country to stir up strikes. The

whole campaign has been conducted "according to plan." This unfortunate country, whose prosperity has hitherto been largely due to the generous payments of the Anglo-Iranian Oil Company for its concession, which still has many years' life, and must suffer from an interruption of work at the oilfields, is in a very sorry condition. Many workers, their minds inflamed by talk of nationalisation, have refused to go on with their jobs and, consequently, for the time being, the Soviet plans have met with a large measure of success, if temporary success. It is not sufficiently recognised, judging by comments on the course of events, that it is not merely the interests of a company, in which the population of the British Isles is a predominant shareholder, which are involved, but the interests of our defence plan and, to a considerable extent, those of British industry. There is good reason to hope that a settlement will be reached in spite of the menace of Russian troops and the tactics of Russian agents. But the diplomatic talks in Paris between the representatives of the Soviet and the Western Powers suggest that, viewing the world as a whole and the situation in Persia in particular, the plotters in the Kremlin are well content to continue making long speeches, while their agents are busily engaged in plotting against all the countries which are condemned as capitalist and, therefore, the enemies of Communism.

Expansion at Lloyd's

Lloyd's has found another expedient as a means of easing the shortage of space in the Underwriting Room which in recent years has been an acute problem. The desks in the "Brokers' Room" intercommunicating with the Underwriting Room have been removed, with the exception of those allotted to the claims clerks of underwriters, and a new "Brokers' Room" has been installed on the mezzanine floor of Royal Mail House, immediately above the present "Brokers' Room." In the space thus set free new underwriting "boxes" will be erected and this will, in some measure, alleviate the pressure on space in the Underwriting Room proper. No one pretends that this new arrangement is popular. To reach their new accommodation, brokers will either have to use an overworked lift or climb two flights of stairs. A broker's desk at Lloyd's is, however, only a *pied à terre*, where he can resort to write out slips and carry out that essential clerical work which the placing of risks at Lloyd's requires to be done on the spot. It is also the means by which he obtains direct telephonic communication with his office, and while this was a convenient arrangement when brokers and underwriters were operating on the same floor (albeit in adjoining rooms), the new arrangement will mean that to use the telephone on his desk at Lloyd's a broker will have to ascend to the new brokers' room, where, if his office originates a call, the red light indicating that he is required on the line may, to paraphrase Gray, "disseminate its purest ray serene" not in ocean's deepest cavern, but on the desert air of an untended desk. Some inconvenience is, however, unavoidable in the unenviable task which the Committee has had in trying to put a quart into a pint pot.

Future of the Flying Boats

In May 1946 the Ministry of Supply accepted a design, submitted by Saunders-Roe, Ltd., of Cowes, for a large flying boat to cruise at over 300 knots and capable of carrying 100 passengers direct from Southampton to New York, even against an 80-knots headwind. Within two years, the construction of three such flying boats was well under way, and the first of these 300,000-lb. Princess boats now has the inner wings and engines installed and is nearing completion. Now the British Overseas Airways Corporation has announced that they will not go into service but will be used by R.A.F. Transport Command for troop carrying. The decision to order such aircraft was a bold one and their design and construction a great achievement. The ordering of three boats was a clear indication that they were intended for a regular service, rather than as an aeronautical experiment. Having got so near completion there is no alternative but to finish the job. Since it is likely to be at least a year or two after the first flight before the Princess is finally approved for passenger carrying, there is plenty of time for the Government to think again and to consider the great dollar earning and prestige value of such a direct, fast and luxurious service between England and America, compared with completely unremunerative and almost unpublicised trooping duties. In time of emergency the boat could, anyway, be commandeered for this purpose. If B.O.A.C. no longer has the convictions and beliefs of the Government which ordered these flying boats, they could still be chartered or sold to an organisation which has faith in the future of flying boat transport. The Civil Aviation Act of 1946 put a stop to the ambitions of shipowners and others interested in operating regular air services without a direct subsidy; but it might be worth while for shipowners to submit, and the Government to consider, a scheme for the proper use of the Princesses as complementary to, but not competing with, the *Queens* of the North Atlantic.

Oil Fuel in Research

Mr. John Lamb, who is at the head of the Research Department of the Anglo-Saxon Petroleum Company, has shown that research can produce very practical results and effect great economies. He can certainly claim credit, if it was his nature to boast, of the success which has attended the use of heavy oil, instead of diesel oil, for internal combustion engines, with no small saving in cost. In his speech to the Oil Industries Club, he referred to Dr. Diesel's hope that powdered coal would be used for the engines with which his own name will always be associated. After this inventor's tragic death, The Shipping World devoted much attention to this development, but the times were not favourable. Little has been heard in recent years of powdered fuel. But, as Mr. Lamb pointed out, since heavy oil was first used experimentally in motorships of the Anglo-Saxon Petroleum fleet, the number of tankers burning this type of fuel has rapidly grown. There are now 300 such ships throughout the world. But Mr. Lamb is still busy. He suggested that new lines of inquiry would be followed, including processes for purifying heavy oil on board ship for burning under boilers, which would involve initial expense, to be recovered later by greater economies. The problems, he added, were the more important because of the present favouring of watertube boilers for merchant ships. He also stated that inquiries would also be made in connection with the use of gas turbines, which may be the next outstanding development in marine engineering before the use of atomic energy for propulsion. Since the coal-burning ship may become a "museum piece" in the lifetime of some of the younger shipowners, Mr. Lamb's further research will be watched with lively interest.

SAYINGS OF THE WEEK

THE BAR TO PROGRESS

"If we are to be taxed at the present rate and if costs are to continue to rise as they are doing it is a perfectly simple mathematical deduction that shipowners in this country cannot continue to replace their fleets."—*Colonel Alan C. Tod*, director of Elder Dempster Lines, Ltd.

SHORTAGE OF TANNAGE

"Today there is a world shortage of shipping, and many owners have rightly deemed it opportune to build new vessels. It is to be hoped that the delivery of those vessels will not be retarded by the naval rearmament programme, which, when in full swing, is estimated to absorb 30 per cent of the nation's existing ship-repairing and shipbuilding capacities."—*Mr. Frederick W. Jones*, chairman of the Cardiff & Bristol Channel Shipowners' Association.

ON THE "BALTIC"

THE NEED TO SPREAD DISCHARGE OVER A WIDER RANGE OF U.K. PORTS

By BALTRADER

When contemplating the perpetual state of congestion in the ports of London, Hull and Liverpool, shipping men ask themselves whether it would not be possible to spread the discharge of tramp vessels over a larger number of ports in the United Kingdom. We are proud of Southampton as a first-class ocean terminal for the great liners; vast sums have been and are being expended to improve the facilities at that port for handling the passenger traffic. In this respect, the damage by enemy action in the last war is being more than made good, but equipment and sheddage for discharging cargo vessels has received less attention. The sheds which are, in fact, available and in use are capable of dealing with much more cargo if better equipped with appliances for stacking to the minimum height. Southampton must be first and foremost a home port of great liners; but it is said that berths are often empty which could be usefully occupied by large deep-sea tramps, without interference with the liner services. Railway and road communications are sufficient to deal with an increase of traffic.

Gloom pervades the ports of South Wales, from which so few cargoes of coal are exported in these days. The train from London passes miles of empty sidings which will never again be required to cope with the work for which they were constructed. They are a reminder of what is past and gone, but they mutely ask to be put to good use in new ways. One has heard a lot about the Severn Tunnel bottleneck, but there is no doubt that a great volume of cargo could be railed (and forwarded by coaster) from South Wales to the North and Midlands and vice versa. The ports could be adapted to handle vessels as efficiently as they have dealt with ships loading outwards with coal. Railway rates of freight may need adjustment to divert traffic to the South Wales ports; ideas must be adjusted also. There is no doubt that when a custom has for long been observed by importers and exporters in the routing of their consignments, it is a difficult matter to alter it. The inertia can be overcome by the offer of better and, if possible, cheaper facilities.

Shortage of Railway Wagons

The recent annual report of the chairman, Mr. R. F. Scovell, at the meeting of the Firth of Forth Shipowners' Association, drew attention to the serious decline in the number of deep-sea ships using the port of Leith. Dock labour is adequate there, in contrast with the state of affairs in London. Mr. Scovell quoted the Select Committee's report on the Timber Control showing that 6,000 standards of timber went in the year from London to Scotland overland at an added cost of £20 per standard. It seems that in the coming months the Timber Control has allocated 1,500 standards of lumber from the North Pacific to Leith, 98,000 to London and 71,000 to the Mersey. I notice that Mr. Scovell refers to the acute shortage of railway wagons in the Forth area, but unfortunately the shortage is often experienced in all parts of the country. It is not surprising that wagons are insufficient in number in view of their use for journeys which could be saved by a wider distribution of shipping arrivals. A greater spread of the shipping which discharges in the United Kingdom is not only of immediate importance to relieve congestion. It is a strategic necessity in event of war.

Cargoes are in plentiful supply east of Suez and a feature is the beginning of chartering for sugar from Queensland to the United Kingdom. Coal chartering from North America to Europe has become less active, which is not to be wondered at in view of the approach of summer and of the large number of vessels which will be occupied in this trade for many months in carrying out contracts for consecutive voyages. Nor is the chartering of grain carriers from North America an active element in the trans-Atlantic market; but demand is well maintained for movement of the Cuban sugar crop. Early tonnage is not plentiful on this side and it is disturbing that mountains of general cargo are accumulating in the United Kingdom for lack of tonnage to permit their export. The small number of tramp vessels now being engaged on time charter by the liner companies is in striking contrast with the stream of ships chartered last year, particularly for trips to Australia, South Africa and India. Before Korea the liner companies could afford to supplement their services with tramp tonnage which now gravitates to more profitable employment.

The Freight Markets

Tonnage is in less urgent demand for coal from North America to Europe although consecutive voyages can be obtained for near Continental destinations. There are many orders to be filled for grain from Montreal to the Continent and inquiry continues to be quite active for sugar carriers from Cuba to the United Kingdom, Continent, Japan and Pakistan. The most interesting development of the week is a renewed interest in vessels for time charter for voyages to Australia and the Far East.

The *Angusdale* is fixed from Hampton Roads to Montevideo at $18.20, 1/15 May, and a handy April/May vessel has obtained $19 for similar employment. Coal from Hampton Roads has also been chartered to Port Said at 120s., April/May, subject to stem. Two vessels have been chartered from Gulf to Eire, heavy grain, at $18.50, May/June and June. St. Lawrence to picked ports West Italy has been fixed at $14.25, May, heavy grain. For sugar from Cuba to the United Kingdom 160s. has been paid for April/May loading. The *Napoli* is fixed from full range Australia to Genoa or Naples at 160s., option other West Italy ports 165s., 1/30 June. Coal fixtures from Lourenco Marques or Durban have been arranged to Port Sudan at 98s. 6d., June/July and to Copenhagen at 145s., July/August. The *Ville de Diego Suarez*, 8,000 tons, is chartered for sugar from Mauritius to U.K. at 142s. 6d., July 20/August 20. The *Greystoke Castle* was recently chartered with general cargo from Gdynia, Stettin or Hamburg to Dairen or Whampoa, 11,500 tons, April loading, combined with soya beans, maize, etc., from Dairen to Hamburg, Stettin or Gdynia at £210,000 f.i.o. for the voyages out and home. A new freight tax of $5\frac{3}{4}$ per cent and agency fee of $2\frac{1}{2}$ per cent on freight will now, it is reported, be imposed at Dairen. Time charter fixtures include *Catrine* (m.v.), 9,426 d.w., 11 knots on 10 tons, a Japanese round voyage excluding war zones at 50s. delivery Bristol Channel, May/June. The liner conference has taken *Trevaylor* (m.v.), 9,080 d.w., 10 knots on 7 tons, at 55s., and *Trevelyan* (m.v.), 11 knots on 10 tons, at 52s. 6d. per month, both for a trip out to Australia with delivery U.K. May/June.

Air Charter Business

Air brokers report a steady flow of inquiries and a satisfactory number of flights arranged. Fixtures continue to be made for carriage of goods from the United Kingdom and Continent to the Far East. In one case a York takes freight from London to Hong Kong and returns with passengers. European air travel will be active in the coming season to judge by the inquiries already being circulated. Among immediate requirements was carriage of passengers from Oslo to London to take part in the recent ski-jumping at Hampstead.

Taxation of Trading Profits

Rates of Initial Allowances

THE Committee on the Taxation of Trading Profits, set up in June, 1949, under the chairmanship of Mr. J. M. Tucker, K.C., has issued its report. The Committee had no reason to doubt the accuracy of the general view that the present cost of plant and machinery is more than double the prewar cost—in some cases considerably more. If it were decided that some further relief should be given to industry by means of an increase in the initial allowances, there would be two ways of doing it. The first would be a general all-round increase (say, to 60 per cent. They did not, however, think that this would be a satisfactory way of dealing with the problem. A statistical investigation would no doubt reveal a wide difference in increases in cost as between different classes of plant and machinery: it was common knowledge, for example, that ships had increased in price to a greater extent than some types of plant. An alternative, and, in their view, a better way, of giving additional relief would be by making initial allowances variable. They saw no more reason for applying the same rate of initial allowance to all classes of plant and machinery than for applying the same rates of wear and tear. Just as the rates of annual wear and tear allowances had always varied according to the estimated life of the class of plant and machinery in question, so the rate of initial allowance could be varied in accordance with its current price level. An advantage of such a system would be that the authority responsible for determining the appropriate rates could be empowered to take into account not merely the rise in price levels but also the importance of the particular branch of industry concerned to the national economy. A company which carried on a shipping undertaking and was a large earner of dollars might well be thought to be entitled to more consideration that a company which ran a fair ground. They accordingly recommended that a minimum rate of initial allowance should be prescribed; that any association which represented a particular industry should be entitled to apply for a rate of initian allowance in excess of the minimum; and that the authority responsible for determining these applications should be entitled to take into account both the price level of the plant and machinery in question and also the importance of the particular industry to the national economy.

Balancing Charges

Representations were made to the committee by the shipping industry on two matters connected with balancing charges. It was suggested that legislation should be introduced to deal with the case where a ship was sold, lost or put out of use, and there was delay in replacing her. Under the existing law the owner of a business who replaces plant and machinery, and would otherwise be liable to a balancing charge, can claim that as an alternative, the amount on which the balancing charge would have been made should be deducted from the cost of the new asset for the purpose of computing the allowances to be given on that new asset. Since a considerable delay may occur before arrangements can be made to replace a ship, it was suggested that there was a danger that the shipowner may lose the benefit of the provision. The committee understood, however, that the Inland Revenue did not seek to deprive the owner of a business of the benefit of the option where the asset was not immediately replaced, provided that replacement was effected within what was a reasonable time in the circumstances of the case; it would be undesirable to introduce statutory provisions to deal with the point.

Where a ship was lost by marine peril, it was represented that no balancing charge should be made. It was pointed out that under existing law no balancing charge is made where the loss of a ship is due to a war risk. There were special reasons for this provision, which did not afford any precedent for the present claim. The committee could not single out these particular circumstances for preferential treatment. There could be no justification for relieving a shipowner from a balancing charge on the loss of a ship and imposing such a charge on other taxpayers who have lost plant or machinery as a result, for example, of a fire.

New Chairman of the "Baltic"

At the meeting of the board of directors of the Baltic Mercantile & Shipping Exchange on April 3, Mr. B. H. Perl, M.C., was elected chairman, and Sir J. Gibson Graham, M.C., vice-chairman, for the ensuing year. Mr. H. C. Brewer, M.B.E., the retiring chairman, by unanimous request of the board, has agreed to continue to act as chairman of the Baltic Exchange Chartering Committee.

North of England Shipowners

Problems of Coasting and Home Trade Tramps

THE 80th annual report of the Committee of Management was presented to the annual meeting of the North of England Shipowners's Association on April 6. Mr. David M. Robinson, the chairman, referred to the slow turnround in ports, which had aggravated the shortage of tonnage. Quoting a recent experience of his company, he said one ship had loaded coals in the United States on seven separate occasions, when each cargo was shipped within 24 hours, whereas in the United Kingdom, experience showed that several days were required for each cargo, when coal was available.

At the end of the year, the report states, there were 209 privately owned ships, totalling 722,407 tons gross, entered in the Association, a reduction of three ships and 8,192 tons. Shipowning and shipbuilding alike, it states, are confronted by the serious problem of increasing operating costs, and the advent of the rearmament programme makes the hope of any reduction of costs, fixed prices or firm delivery still further distant. The nationalisation of steel, it is felt, will be harmful to both industries. In the coasting and home tramp trades, cooperation has again been the keynote, and the acceptance of Chamber of Shipping schedule rates by charterers of all types of cargo has been appreciated. Freight rates were revised in September, but in the intervening six months crew's wages and overtime expenses have increased substantially, and this applies to other items such as fuel and port charges, with the result that a percentage increase on all scheduled and unscheduled freights has now been agreed. Competition from internal transport, whose rates have never been economic, has especially hit the smaller short-sea trades the lack of fuel for export to near-Continental ports is having a most serious effect on the earnings of vessels normally running in this trade.

Discussions have been taking place with the Ministry of Transport with regard to the large increase in tonnage owned by or building for the nationalised public utility undertakings. The Chamber of Shipping deemed it unadvisable to interfere with the arrangements for the management of these vessels, but is endeavouring to reach an understanding in regard to the number of vessels to be built in relation to the total seaborne requirements of these undertakings. Local owners find themselves faced with a situation which offers little encouragement for them to renew or to add to their fleets of self-trimming colliers.

International Chamber of Commerce

The present tendency among certain Governments to compel traders to conclude contracts for export on a c.i.f. or C. & F. basis, and for import f.o.b. was deprecated by the Commission on Sea Transport of the International Chamber of Commerce at a recent meeting in Paris. The result of these discriminatory measures is to limit the insurance of foreign trade transactions to national insurance companies and to reserve shipments to the national flag. Such a tendency being contrary to the contractual freedom of the trader, a resolution was adopted requesting the Economic and Social Council of the United Nations, the contracting parties to GATT, and other inter-governmental bodies concerned, to urge Governments to free conditions of sale from such restrictions.

The ICC's Commission also condemned the waste of shipping tonnage resulting from the delays forced on vessels in certain countries, which raised transport costs at the expense of the users and consumers. In full agreement with the International Chamber of Shipping, the Commission called upon Governments and all interests concerned, public or private, to give careful consideration to this matter.

The following have been elected members of the Baltic Exchange:—

Messrs. H. J. Jailler (Rye-Are, Ltd.), J. C. Shaw (Varon & Co., Ltd.), A. J. M. Crichton and R. M. Thwaites (Peninsular & Oriental S.N.C.), J. A. Thomson (Thompson Steamshipping Co., Ltd.), T. Aperguis (Avgherino & Aperguis), G. Economou (S. Livanos & Co., Ltd.), W. T. Crompton and R. H. Black (Matthews Wrightson Burbidge, Ltd.), L. S. Lloyd (Ellerman & Bucknall Steamship Co., Ltd.), W. P. Barnes (Kahl Wallis & Co., Ltd.), F. Landini (British Italian Trading Co., Ltd.), R. H. Arnold (Richard Arnold & Son), L. Schamburg (Huth Produce Sales (Overseas), Ltd.), W. G. Edmonds (Manchester Ship Canal Co.), W. L. Pickers (Transport Exchange Co., Ltd.), H. B. Coppard and R. H. J. Thomas (Howard Tenens, Ltd.), F. Cattoir (Britseas, Ltd.), R. C. Thompson (Joseph L. Thompson & Sons, Ltd.) and B. H. Perl (Buries Markes, Ltd.).

PACKAGING FOR EXPORT*

DAMAGE CAUSED BY DEFECTIVE INTERNAL PACKAGING

For a packer to be in a position to know what type and method of packaging is necessary for a particular destination, he must first of all familiarise himself with the handling and climatic conditions en route to and in the country in question. To ascertain these conditions for myself I paid a visit in 1947 to various parts of the world, including the Caribbean area of South America, and in 1950 again visited the Caribbean to judge whether the action taken to improve packaging methods, which resulted from the information gained during my earlier visit, was proving effective.

In Trinidad the main and only port capable of discharging ocean vessels is Port of Spain. This port is well organised with good and, as a general rule, ample storage facilities. In common with most other tropical countries they have extremely high rainfall during the wet season, which, combined with a high relative humidity, can cause severe corrosion. Although handling in Trinidad is generally speaking good, there are exceptions. Pilferage is a world-wide problem, and Trinidad is no exception, although a marked reduction in losses has been achieved by the energetic action taken by the authorities in supervising port labour and operations.

My impression of Venezuela in 1947 was that due to rapid economic expansion the handling and transport facilities were unable to cope efficiently with the enormous volume of goods then being imported, with the result that goods were sometimes hastily discharged, badly handled and often stored in the open. In this country also, tropical rainstorms and an extremely humid atmosphere make efficient anti-corrosive treatment essential. Good roads exist, as a general rule, only in the main towns—the great majority are tracks which, due to the rains, great distances, and difficulty of maintenance, are often in an appalling condition. Pilferage in this country, as elsewhere, is a serious problem, which is often aggravated by the fact that the goods can be easily taken from the packages that, due to their inadequacy, have been damaged in transit, even if only slightly. It should be borne in mind that damaged containers may have to travel several hundred miles inland after the damage has occurred.

The problem of packaging materials for export to Colombia is even more difficult than for their destinations. In my opinion shipments to this country, particularly to interior destinations, are subjected to some of the worst exposure and handling conditions that will be encountered anywhere. Storage facilities at the ports are fairly good, although they are obviously not adequate, to judge from the quantity of goods of every description which I saw stacked in the open, outside the sheds. In this country the climatic and transport conditions present an even greater packaging problem. Rainfalls of 8 in. in five hours are not an uncommon occurrence, so that a large part of the country is swampy and humid. These conditions, combined with the Andean ranges, made transport, until the advent of the aeroplane, extremely difficult.

The main means of transport is by boat on the River Magdalena, which is about 1,000 miles long, and is navigable by passenger and cargo boats, except during the dry season, between Barranquilla, the main port in Colombia, and La Dorada, a distance of about 550 miles. As little or no maintenance work is undertaken on the river, coupled with the ever increasing demands of labour, some owners of the river craft are giving the Government notice of their intention to suspend navigation on this artery of Colombia's transport. There are about 2,200 miles of railways. Unfortunately this railway system is composed of several sections, each in a different part of the country. Bogota, the capital, is not connected at the moment with any of the ports, except La Dorada, the port on the River Magdalena, but the Government is putting into effect plans to connect two existing sections, thus providing a link between Bogota and a port on the Pacific coast.

100 Packages which Failed

As a result of my first trip, during which I received details of well over a 100 complaints of bad packaging, every manufacturer was either visited or contacted and given copies of the photographs relating to his own consignments. It appeared from these complaints that in practically every instance, the failure of the packages was mainly due to the poor construction of the outer case or crate. Improved methods were worked out, in conjunction with the manufacturers, bearing in mind that the Government request for increased exports to hard currency areas was, as stated earlier, prompted by our urgent need for dollars, not sterling from a British insurance company if the goods were lost or damaged, due to inadequate packaging.

After a period of three years, during which time we received over 300 complaints from our oilfields and refineries in all parts of the world, the position was reviewed by analysing the complaints received since 1946. The percentages for corroded material over this period were:—

1946	43%	1948	8%
1947	24%	1949	7½%

The figures for damaged goods received inside damaged packages were:—

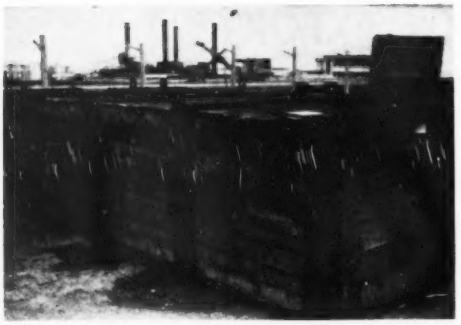
1946	50%	1948	20%
1947	49%	1949	14½%

By virtue of our intensive campaign for better packaging,

* Abstracts from a paper by J. J. Ferriggi, of the Shell Petroleum Co., Ltd., read before the Midland Area, Institute of Packing.

Damage Results from Lack of Battening

From the picture on the left it appears that the bottom case of the two identical packings is undamaged, while the top case, which apparently has been placed upside down, has partially collapsed. On the right can be seen the top case with the end removed, showing its contents, a pump valued at £360. The pump had been bolted to the base of the case but had not been battened in position. When the case was unloaded upside down, probably not too gently, the sides were pushed outwards and the pump dropped to the bottom of the pack



A well constructed pack, but the fixed slinging eyes standing 6 in. above the crate mean an unnecessary increase in freight calculated on measurement

we had anticipated a falling off in the number of complaints. In point of fact the number of complaints of damaged material received in broken containers had shown a progressive reduction, and this trend was reflected in the lower proportion of complaints under this category. It will be appreciated that although the main cause of damage was gradually being eliminated through the use of more robust and soundly constructed containers, there were still other factors to be taken into account.

Internal Packing Failures

The analysis showed a notable increase in the proportion of complaints, for the same period, in respect of damaged material inside undamaged cases:—

1946	7%	1948	72%
1947	27%	1949	781%

The only inference to be drawn from these figures was that the battering, securing or cushioning inside the containers also needed improving. To ascertain if we had been working on the right lines, and to confirm that the theory was in accord with the facts, I made my second tour of the Caribbean in 1950. At each of the places I visited the picture appeared to be much the same. Whereas in 1947 all the countries in this, and most other areas, were importing an enormous volume of goods, due to their being unable to obtain supplies during the war years, they had in 1950 apparently passed the peak period. Practically everywhere there were signs that the volume was slightly less, with the result that in most places handling was not quite so bad as it had been.

Let us consider what information is required in order to design an efficient pack.

The first step should be to obtain the following data:—

(a) The climatic conditions in the country to which goods are consigned.

Damaged flimsy crates containing enamelware

(b) Any special packaging in view of the nature of the goods.

(c) Whether goods will be shipped on deck or transhipped en route.

(d) Unloading facilities at port of discharge.

(e) Handling conditions en route to final destination, not forgetting that the worst part of the journey may be after discharge from the ocean steamer.

(f) Packaging regulations of importing countries.

In deciding what action is necessary for climatic conditions, the main consideration must be the prevention of corrosion. Many manufacturers take the utmost pride in the quality and finish of the equipment they produce, but for some inexplicable reason they appear to be quite content to have their packers smear some oil or grease on the equipment prior to packing. Surely, if it is worth while spending a lot of money on development and production costs, it is only common sense to ensure that the goods are in good condition when they reach the user. To do this a specially compounded anti-corrosive should be employed wherever there are corrodable ferrous metal parts and surfaces. Also, for the prevention of corrosion, or in fact for any form of deterioration through dampness, it is essential that the goods should be protected by using a good quality waterproof paper efficiently applied as a wrapper or liner.

Fragile and Delicate Products

The special packaging necessary for certain types of fragile equipment must be seriously considered. Cushioning with ordinary materials such as wood wool or straw are not satisfactory for such articles as large radio valves, etc., which should be anti-shock mounted in a lightweight crate, in which the valve should be visible. Delicate instruments which will be affected by shock and moisture, but cannot be treated with anti-corrosives, require special treatment in packaging.

Shipment on deck obviously calls for special attention to the waterproofing of the package, while transhipment means extra handling, with its attendant risk of damage; therefore, it is the duty of the packer to obtain this information in advance, and to take any additional precautions necessary. Many packers will probably ask how they can be expected to know the facilities at the various ports. There are publications such as "Ports of the World," published by THE SHIPPING WORLD, LTD., which, while they may not give every answer, give a good indication of the cranage, wharfs, etc., at practically every port.

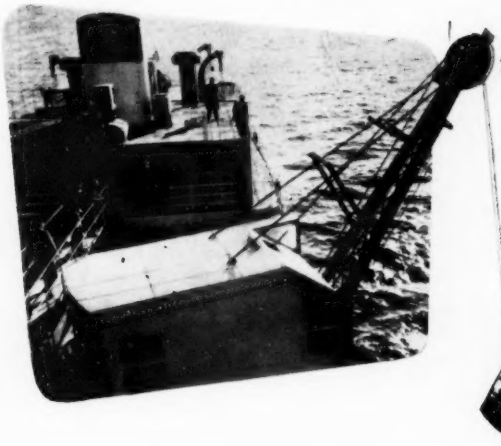
In connection with import regulations of the country to which goods are consigned, here also there are publications such as "The International Mercantile Diary and Year Book," and "Croner's Reference Book for Shippers," which give much useful information on this subject. Having acquired this information, it is then possible to work out the detailed specification for the required package. The British Standards Packaging Code B.S. 1133, which is now being revised, will be found to give, in its various sections, which deal with practically every aspect of packaging, most useful information on this complex subject.

Although we have gone a long way towards balancing the U.K. import/export trade with the dollar countries, we are now, in addition, faced with a serious shortage of materials, due to the rearmament programme, and as a natural sequence a shortage of labour is bound to follow in the near future. These shortages will result in less goods being available for export, which means that in spite of the progress made last year, it is not going to be easy for us to pay our way abroad in 1951. The rise in import prices means that for the same volume of imports in 1950, we may have to pay as much as another £400 mn. this year. But if we can get them, we shall actually need bigger imports, particularly of materials, to sustain the higher level of production now reached, including defence production, and to rebuild depleted stocks.

There can be no doubt, therefore, that we shall need a further big expansion in exports, which means that our overseas customers must be satisfied in every way with British goods on arrival at destination, for them to place additional orders in the U.K. Only good quality products, well packaged, will achieve this end.

The current edition of "Imagery," issued by the Film Producers' Guild, Ltd., Guild House, Upper St. Martin's Lane, London, W.C.2, contains examples of a Technicolour cartoon shortly to be released entitled "River of Steel," produced in cooperation with the British Iron & Steel Federation.

Dredging by Diesel-Electric systems . . .



the Metrovick way

Three dredgers now in service on the river Mersey owned by the Mersey Docks and Harbour Board are equipped with Metrovick diesel-electric propulsion machinery and auxiliaries employing the Constant Current System. Dredgers No. 26 and 27 were built by Ferguson Bros. (Port Glasgow) Ltd.; No 14 was built by Lobnitz of Renfrew.

METROPOLITAN-VICKERS ELECTRICAL CO. LTD., TRAFFORD PARK, MANCHESTER 17

Member of the A.E.I. group of companies

METROVICK *Makers of fine marine machinery*

Often Cheaper · Always Faster

FLY YOUR

Less Handling · Lower Insurance

FREIGHT

Lighter Packing · Increased Markets

BY B·O·A·C

For complete information write to your local B.O.A.C. Forwarding Agent or B.O.A.C., Freight Enquiries Section, Airways Terminal, Buckingham Palace Road, London, S.W.1. Telephone: VICtoria 2323. Ask for your free copy of "B.O.A.C. AIR FREIGHT".

GREAT BRITAIN · U.S.A. · BERMUDA
CANADA · WEST INDIES
CENTRAL & SOUTH AMERICA · MIDDLE EAST
WEST AFRICA · EAST AFRICA
SOUTH AFRICA · PAKISTAN · INDIA
CEYLON · AUSTRALIA · NEW ZEALAND
FAR EAST · JAPAN

BRITISH OVERSEAS AIRWAYS CORPORATION IN ASSOCIATION WITH QANTAS EMPIRE AIRWAYS LIMITED, SOUTH AFRICAN AIRWAYS AND TASMAN EMPIRE AIRWAYS LIMITED

Licence-Free

weyroc (REGD)

MAN-MADE **TIMBER**

for

BETTER WORK at LESS COST

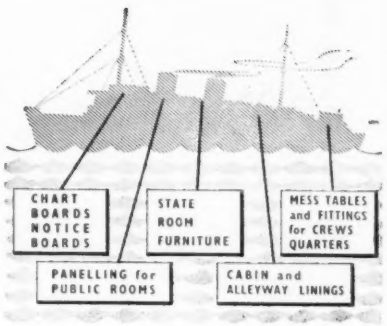


CHART BOARDS NOTICE BOARDS
STATE ROOM FURNITURE
MESS TABLES and FITTINGS for CREWS QUARTERS
PANELLING for PUBLIC ROOMS
CABIN and ALLEYWAY LININGS

WEYROC "goes to sea" with the approval of the Ministry of Transport. It goes too, with the approval of those who build and re-fit ships—for Weyroc is the modern, knot-free, flame-resistant timber that has the strength to take cabin fittings without inserts and yet can be worked by normal woodworking methods. In practice its use often involves *less* work: as an example, the extra wide boards are free from warping and so can be butted together without cover strips when used for alleyway linings. The result—a better finished job with less labour and less materials. Weyroc cuts the cost of building the finer ships of tomorrow.

WEYROC is available in large boards ½" and ¾" thick in three grades: Plain, Paper-surfaced, needing no filling before painting, and decorative Veneered.

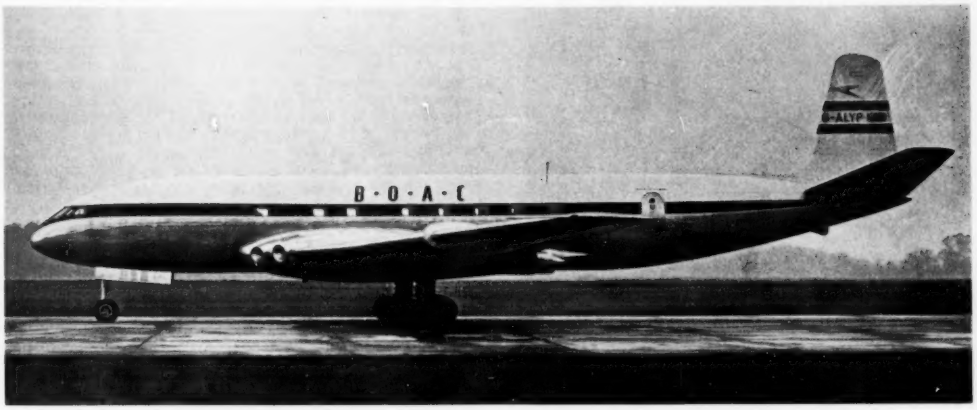
MAIN DISTRIBUTORS

BOURNEMOUTH: Sherry & Haycock Ltd. **BRISTOL:** Bryce White & Co. Ltd. **CARDIFF:** John Bland & Co. Ltd. **EXETER:** Gabriel, Wade & English Ltd. **LEEDS:** Alvin Morris & Co. (Timber) Ltd. **LIVERPOOL:** Chas. Taylor, Sons & Co. Ltd. **LONDON:** Gabriel, Wade & English Ltd. E. Sherry Ltd., John Lenanton & Son Ltd. **MIDLANDS:** J. O. Walker & Co. Ltd., Leicester. C. Walsh Graham Ltd., Wednesbury, Staffs., **NEWCASTLE:** J. T. Dove Ltd. **SCOTLAND:** Brownlee & Co. Ltd., Glasgow.

The Airscrew Company & Jicwood Ltd.

Weybridge, Surrey

Telephone: Weybridge 1600 *Telegrams: Airscrew, Weybridge*



THE DE HAVILLAND COMET

THE FIRST JET LINER IN THE WORLD

By E. N. B. BENTLEY

WHEN the original de Havilland Comet flew from Mildenhall to Melbourne in 71 hours, thus winning the MacRobertson trophy race, in 1934, this little 400 horsepower twin-engined two-seater racing monoplane set a new standard of performance on the Empire routes. Another new standard was set when the Comet of 1949 flew the 1,500 miles from England to Tripoli in 3½ hours. The significance of the latter performance lies not only in the great increase in speed, from 210 m.p.h. to 490 m.p.h., but also in that the present-day Comet is a civil air liner and not a special racing aeroplane. There is no doubt that the appearance of the Comet in 1949 took the world by surprise and put the British aircraft industry several years ahead of the rest of the world in air liner design. This is indicated by the unusual, almost unprecedented, interest shown by the executive heads of some of America's foremost air lines. This aeroplane was a bold conception on the part of the de Havilland enterprise, and might well have remained no more than an experiment but for the initiative of the British Overseas Airways Corporation in placing an order for Comets before the first one was built.

For something like three years before the Comet was built, the design team, under R. E. Bishop, chief designer and director, and R. M. Clarkson, assistant chief engineer, were working on the project. Many ideas on the layout, aerodynamics and structural design were investigated and, as they became more firmly defined, were followed by numerous tests and experiments. A section of the fuselage was built and pressure tested in a specially constructed water tank; a full size working model of the hydraulic powered control system was rigged up and operated continuously for three years; 16,000 retractions were made in the course of testing and perfecting the undercarriage operation. In addition to the usual static tests, a great deal of work was also done on repeated loading, including many thousands of applications of the normal wing loads and 2,000 applications of the worst undercarriage landing loads. It is largely due to such thorough and detailed pre-flight testing that the actual flight trials of the Comet have progressed so rapidly. Within a month of the first flight by John Cunningham, on July 27, 1949, the Comet had flown for 32 hours and the total for eleven months' flying was 324 hours. An average of one hour's flying a day for experimental flying is clear proof that there were no major flaws in the design and is all the more meritorious in view of the radical departure from previous practice in civil aviation.

The photograph above shows the first de Havilland Comet in B.O.A.C. colours. This view shows the nosewheel and four-wheel undercarriage

Modern aircraft are extremely complex in design and the larger they are the more complex they tend to become. This tendency is accentuated for a pressurised aircraft and for one in which power operated controls have to be used. One of the outstanding features of the Comet design is a deliberate and successful effort to reduce the complexity and attain the greatest possible simplicity. The gas turbine engine itself is one of the biggest contributions to simplicity and in its train follow many other simplifications which would not otherwise be possible. The de Havilland Ghost centrifugal-type turbine has fewer working parts and is far lighter and smoother running than a reciprocating engine of equivalent power. The slightly smaller Goblin engine, of similar design, is already approved for running 600 hours between overhauls and it should not be long before experience on the Ghost allows of a similar period. The much reduced vibration of the turbine power plant results in longer and more trouble-free life of such equipment as instruments and radio. The large supplies of compressed air and heat inevitable in the working of a gas turbine are used in the Comet to provide cabin pressurising and airframe de-icing, thus avoiding the cost, complexity and weight of compressors and heaters.

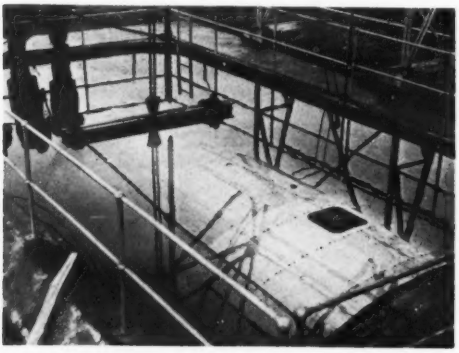
Important Simplifications

One of the most important simplifications is the elimination of the variable pitch propeller, together with its controls; another is the considerable reduction in the number of power plant instruments and instrument dials. This does away with the need for a separate flight engineer and so reduces operating costs and increases the payload by the equivalent of one passenger. Another advantage of the turbine engine, which is too often forgotten, is the reduction in fire risk resulting from the use of paraffin instead of petrol. As proof of this, insurance companies raise no objection to the Comet being refuelled overnight and parked indoors with 6,000 gallons on board.

The first production Comet, with top painted white to reflect heat of tropical sun

The Comet, with a wing span of 115 ft., a wing area of 2,015 sq. ft., and an all-up weight of 105,000 lb., is our biggest transport. The four Ghost turbo-jet engines give a cruising speed of 425 knots (490 m.p.h.) at 40,000 feet. A characteristic of the Comet is the sharply tapering wing with considerable sweepback and, in side view, the unusually small fin and rudder. Owing to the absence of propellers, the engines can be set close in to the fuselage, and to each other, thus reducing the offset thrust when one engine is stopped and therefore allowing a smaller rudder. The elimination of propellers also allows a shorter, and therefore lighter, undercarriage and supporting structure. The four-wheel bogie on each main undercarriage spreads the load, thus reducing the stresses on the runway and also improving the braking. A feature of the construction of the Comet is the use of " Redux " bonding of stringers to sheet. This bonding, done under heat and pressure, was limited to panels curved in one plane only. De Havilland's have now solved the problem of bonding to panels with double curvature, such as those where the parallel section of the fuselage blends into the tapered nose or tail portion. This type of metal-to-metal joint gives a better strength/weight ratio and a smoother finish than riveting and has been thoroughly tried out for several years in all sorts of climatic conditions on the little de Havilland Dove twin-engined transport.

The flight deck of the Comet provides for a crew of four—captain, first officer, navigator and radio operator. The array of instruments, though appearing almost fantastic to a layman, is considerably less than it would be for a comparable piston-engined aircraft.



Test section of Comet fuselage in water testing tank at Hatfield

Flying controls are, of course, duplicated and there is the usual central pedestal with throttle, flap and undercarriage controls, between the pilots. The captain has, in addition, a small wheel for operating the hydraulic powered nosewheel steering which, together with the main wheel brakes, allows easy and accurate manœuvring on the ground. Aft of the flight deck is the galley, with seating accommodation for a steward on the starboard side and a 200 cu. ft. luggage hold on the port side. The passenger accommodation starts with a cabin seating eight passengers; two pairs facing each other across a table, on each side of the central gangway. This cabin is separated by a bulkhead from the main cabin, which seats 28 passengers in pairs on either side of the gangway. Each individual seat is adjustable and is provided with a reading light and a steward's call button. Aft of the main cabin are the toilets and washrooms, wardrobe for passengers' overcoats, a seat for the stewardess and compartment for light luggage. An additional 185 cu. ft. hold, accessible from outside, is situated below the floor of the main cabin. All accommodation for crew, passengers and luggage is air conditioned and pressurised to give the equivalent of 8,000-ft. altitude when flying at 40,000 ft. The air can be cooled or heated, as required, and humidifiers keep the moisture content at a comfortable level, a necessity when flying really high.

The Ghost Turbines

The de Havilland Ghost turbines each give 5,000 lb. static thrust, at 10,250 r.p.m., for a weight of only 2,220 lb. An indication of the capacity of the Ghost and the power of its compressor is that it takes in more than a ton of air a minute, at maximum power. The gas turbine loses a greater proportion of its power when operating in hot climates, than does a piston engine; but the use of water injection in the Ghost reduces this loss considerably. Another alternative, for use in hot climates and at high altitude aerodromes, is the de Havilland Sprite rocket for take-off, and provision for fitting this is made in the Comet. The Ghost, being a centrifugal compressor type of engine, has a larger diameter and a greater thirst for fuel than the axial compressor type, but it is simpler, quicker and cheaper to build and maintain and is more robust. It has, in fact, been proved well able to gobble up small stones, lumps of ice, birds and careless people's hats, with no more than a momentary hiccup and with almost negligible damage to the mechanism. The complete elimination of magnetos and sparking plugs (of which there may be 28 to 56 per engine) is a major factor in reducing the time for maintenance and location of faults. The whole of the underside of the engine is easily accessible for inspection and maintenance and a complete power plant has been changed by three men in one hour. The simplicity of construction and small number of highly stressed parts make the day-to-day servicing and inspection a much quicker and cheaper operation. The material costs for replacements at a major overhaul are still high; but it is claimed that the overall economy of operation of this type of engine is already marked.

In spite of the 400 or 500 hours of flying which has now been done on the Comets, three of which are now flying, little information on performance or weights has yet been released. It may be that until more is known, and decided, about the approach procedure and " stacking " arrangements for jet aircraft, which are notoriously extravagant of fuel when flying at low levels, details of the relative weights of payload and fuel cannot be given. However, assuming that 6,000 gallons is the maximum fuel capacity, the quantity of paraffin would weigh 48,600 lb., which is a very large amount compared with the declared capacity payload of 14,000 lb. Put in another way, one of the fundamental differences between the jet and piston engined air liner is shown by the fact that 6,000 gallons amounts to 46 per cent of the take-off weight of the Comet, whereas the maximum fuel load of a well-known piston-engined air liner, with approximately

Monthly Air Transport Section

similar range and payload characteristics, is 28 per cent of the take-off weight.

A typical cruising performance has been quoted as the carrying of a 12,000-lb. payload at 425 knots (490 m.p.h.) for a distance of 3,060 nautical (3,540 statute) miles, cruising at 40,000 ft. The payload and distance are presumably based on using all the fuel carried, no allowance being made for diversions or " stacking." Convincing proof of the speed of the Comet is given by the London-Rome record of 2 hours 2 minutes, at an average speed of 390 knots (447 m.p.h.) and the London-Copenhagen record at an average of 395 knots (454 m.p.h.). These speeds are calculated on the time of passage from airport to airport and may be some 30 knots or so below the actual cruising speed. The Comet has undoubtedly achieved, in one jump, a speed of 150 to 170 knots above that of the world's air liners of today. The large number of revenue earning miles which can be achieved in each operating hour is one of the fundamental points in the economics of the jet air liner. Any method of assessing airline operating costs must take into account the annual utilisation of the aircraft, in terms of revenue flying hours per year. It is clear that if a jet liner flies half as many miles again in every hour, compared with a conventional aircraft, then overhead costs per mile flown (based on utilisation) will be reduced by one-third. It is stated that the Comet will show to most advantage economically on stage lengths of between 1,000 and 2,000 miles. This should be well suited to some of B.O.A.C.'s Empire routes but is too short for regular operation on the Atlantic route from Prestwick to Gander. The proposed Mark II version of the Comet, with axial compressor turbines of greater power and (even more important) lower specific fuel consumption, should, however, be capable of operating this service. The high cruising speed would be a big asset, as the difference in time, and fuel load, between the westward crossing against the prevailing winds and the eastward crossing with the wind, will be much reduced.

The de Havilland Comet has made one of the biggest steps forward in the history of aircraft design and is based on another fundamental contribution made by this country—Sir Frank Whittle's gas turbine. However, airline economics is largely a matter of revenue ton miles per gallon of fuel; and the case for the jet liner mainly depends, therefore, on proving that the increase in miles (and other advantages such as economy in maintenance) is more than sufficient to compensate for the loss in payload tons. The advance in aeronautical achievement shown by the Comet is a justifiable matter for pride in the British aircraft industry. An air liner, however, is not built for the gratification of the designer or operator, but for a service to the travelling public and it is on that basis that the final judgment must be formed.

AIR TRANSPORT AND CHARTER COMPANIES*

PERFORMANCE AND PROBLEMS OF AIR CHARTER OPERATION

EARLY in the 1920s, a company named Surrey Flying Services commenced trading for the purpose of giving flying tuition. From time to time, charter flights were carried out in such aircraft as De Havilland Gypsy Moths and later in De Havilland Fox Moths. From these early beginnings, a dozen or so companies were operating for the purpose of charter flying by the late 1920s and early 1930s. There is little doubt that the production by De Havillands of their Dragon, and later Rapide, aircraft in the early 1930s greatly assisted the growth of this new industry. With these two-engined aircraft, which had cabin accommodation for eight passengers, and a speed of 110 to 120 m.p.h., the charter business really began to expand, and the period 1936 to the outbreak of hostilities were bumper years for the charter companies.

The variety of tasks undertaken in these years was enormous. Scottish Airways, one of the major private enterprise companies in Scotland, operated a "flying doctor and ambulance" charter between the mainland and the Hebrides, from Aberdeen to the Orkneys and the Shetlands, and on occasions between certain islands in the Hebridean group and Stornoway. These particular operations are today carried on by the British European Airways Corporation, and form the basis of a special flight or section at Glasgow. They operate between 200 and 300 flights per annum. Although the Scottish one referred to was probably the best known, there were, of course, many ambulance charters operated in England and between England and the Continent. There was an occasion where a Greek member of a ship's crew at Liverpool was found to be suffering from leprosy. The underwriters of the shipping company concerned arranged for a special charter to collect the patient from Liverpool and proceed to Athens.

On the commercial side, a manufacturer of asbestos fire-fighting equipment chartered an aircraft to take urgently needed supplies to a fire which had broken out on the oil pipeline in Iraq. The facilities of Imperial Airways becoming overloaded during the 1938 Christmas mail rush, the charter companies were offered charters between this country and Alexandria, for the delivery of the Christmas mails. For passengers, charter aircraft were in particular demand for holidays to Belgium, Switzerland and France, and there was always a long string of parties who wished to go to these places. Parties to race meetings were a daily feature, and the Jockey Club opened a landing ground at Newmarket for the convenience of air-minded racegoers. The Press have always been great users of charter aircraft, and still have contracts with numerous companies, both in this country and abroad. One of the mainstays of the period 1936-39 was, without doubt, the flying carried out for the purpose of Army Co-operation. This work was considerable, and it was quite usual for almost every charter aeroplane at Croydon Airport, which was then the airport of London, to be engaged on this type of work each night.

On the outbreak of war in 1939, all the charter companies were embodied into an organisation co-ordinated by the Department of Civil Aviation, as it was then, under the title of the National Air Communications. In this role, the majority of charter aircraft had been carrying Service personnel to France and Belgium some days before the outbreak of hostilities, and they continued this work until early 1940. As the Services were able to supply more of their own transport, so National Air Communications' aeroplanes were withdrawn for service in England. Some of the aircraft were immediately requisitioned for R.A.F. purposes, but others retained their civil status for months to come, undertaking a survey of the blackout efficiency of the United Kingdom. There were two groups of three aircraft, and during the winter of 1939-40 almost every large city was examined from the air. The spring of 1940 saw the end of civil aircraft operated for charter purposes, until the cessation of hostilities in 1945.

Postwar Activities

The postwar period of charter operation commenced on similar lines to those abandoned in 1939, namely, by the operation of small aircraft of the Rapide type, plus a number of Consuls and other types of aeroplane of a similar weight. It did not take long for the charter operators to realise that the newly formed British Air Corporations would not be able to cope with the tremendous number of intending passengers. We saw, therefore, charter companies commencing to operate some of the larger twin-engined aircraft, and ultimately the four-engined Avro York, which was capable of carrying some 30/40 passengers at a time. The charter operations were, however, soon to be seriously influenced by the Civil Aviation Act, which reserved to the State Corporations the sole right to operate a regular schedule service carrying individual fare-paying passengers.

From 1946 to the summer of 1949, the number of charter companies, whose major interest was the operation of one or more charter aircraft, rose to exceed 100, but at the end of 1950 this figure had fallen to between 35 and 40. The advent of the increased number of services operated by the Corporations reduced the demand for charter aircraft. The effect of the falling demand was tempered by the charter

* Abstracts from a paper read by Capt. R. J. Ashley, managing director of Skyways, Ltd., before the Institute of Transport on March 5, 1951.

Monthly Air Transport Section

operators' participation in three major operations, namely, Operation India, Operation Pakistan and the Berlin Air Lift. The full force of this decline was not brought home to us until the Berlin Air Lift finished in September, 1949.

Royal Air Force Auxiliary Squadrons

Quite recently the Air Ministry have asked certain charter operators to submit plans for the establishment of Royal Auxiliary Air Force Transport Squadrons, which would be largely recruited from the employees of the companies concerned. So far, one such Squadron has been formed, and some three or four others are contemplated in the near future. The operation of such a Squadron is taken in its stride by the charter companies, and apart from its possible role in war, it does provide both the air and the ground crews with a small amount of additional work, for which both they and their company receive payment. Apart from the running of certain Reserve Training Schools for the Air Ministry, which one cannot really consider as coming properly under the heading of the normal business of the charter companies, this formation of the Auxiliary Squadrons is the first encouragement, apart from very scattered demands for movements of Squadron personnel, that the charter companies have received from the Air Ministry, and may have enabled the companies concerned to retain certain air crews and ground crews, who would otherwise have become redundant through lack of business within the industry.

The facilities offered by charter companies are, generally speaking, slightly different from those obtaining in other branches of transport, in that heretofore it has always been necessary for the charterer to pay for the journey out and the journey home, and on some occasions, where demurrage would not take care of the waiting time at the destination, it has been necessary to carry out two double journeys, all charged to the charterer. In an effort to combat the falling off of business, considerable exploration has taken place with a view to obtaining return loads after completing an outward charter. While operating on this basis would certainly be more attractive because of the lower cost to the charterer, the possibilities of being able to achieve return loads at the right time, and within a reasonable distance of the outward destination, are extremely remote. On many occasions, aircraft have left their home base on the assumption that they would pick up a return load at X, only arriving at X to find that the load had already been picked up by another aircraft, or shipped by sea. I do not say that this incident befalls every single-way charter, but by reason of the speed with which they are organised, it seems inevitable that it is a factor which must always be considered.

Rates of Charter Hire

Before the war, a recognised rate for the charter of a Rapide aircraft, capable of carrying eight people, was 2s. per mile. A similar charter arranged today, of the same aircraft, would be 2s. 6d. to 2s. 9d. per mile. The heavier types of aeroplane have, since the war, varied their prices enormously, directly as a result of supply and demand. There was a time, soon after the war, when a Dakota aircraft, which could carry 25 people or 6,000 lb. of freight, could command 10s. per mile. During the critical period after the Berlin Air Lift the rates for this particular aircraft did fall, I am told, to as low as 3s. 6d. per mile, again by reason of supply and demand. Mainly due to the smallness of the supply, these aircraft are now commanding 7s. per mile.

The present trend of charter companies must, I think, be considered in two sections:- one consisting of the smaller single and twin-engined aircraft, with a maximum weight of approximately 12,000 lb., and those companies which operate the larger twin- and four-engined aircraft. In the former class, I feel that the level of operation is still artificially high, and that while it would be possible for these smaller companies to remain in being, it will need the strictest control of economics. The business of the smaller operators has not been vitally affected or altered in kind since the prewar days. Newspapers are still flown to the Continent. Small parties still travel to the races or the Continent. The Press still use aircraft for conveying their correspondents and photographers. If the Army Co-operation flying, which these companies did so ably in 1936-39, could be reinstated, it would make sure of retaining the excellent hard core of the small charter operators.

The situation of the operators of the larger type aircraft is a difficult one. Here again there are virtually two categories. The first is the small company operating from one to a maximum of three aircraft of the Dakota type, who, by purchasing their maintenance from a third party, and virtually making the managing director act as pilot of aircraft, are able to keep their overheads at such a low level that I cannot help but feel, provided they maintain their mechanical efficiency, they will never be short of work.

Another category consists of those companies operating a multiplicity of aircraft, and who, in the course of the years, have built up large staffs. There is little doubt that these operators will, in the next five or six years, be faced with serious economic problems, arising from the steeply rising prices of new aircraft, to replace their present fleets. It would be fair to say that the larger operators, with possibly one or two exceptions, achieved their present fleet of aircraft from Ministry of Supply war surplus Stocks, and although, as I say, I can think of one or two exceptions to this rule, the fact remains that replacement aircraft will stretch the finances of the charter companies, unless they are able to obtain long-term contracts for the carriage of a particular company's personnel, or for a Government Department Leave Scheme, or, alternatively, Government contracts for the carriage of Service wives and personnel. Quite recently Airwork, Ltd., one of the largest charter companies, obtained one of these long-term contracts from the New Zealand Railways for the carriage of railway stores between the North and South Island, New Zealand. The aircraft to be used would be Bristol Freighters, and the contract calls for a movement of at least 15,000 tons of cargo per annum.

Need for Long-Term Contracts

The basic requirement for the continuation of a healthy charter industry is, without doubt, long-term contracts of say, five years, with good reason to expect a renewal at the end of that period. This factor is vital, not only because new replacement aircraft necessary to operate these contracts will cost anything between £200,000 and £400,000 each, but because the personnel employed in the industry expect, and rightly so, some security in their jobs, and because the financial risk involved in operating a large charter company without a fair proportion of long-term business is not acceptable. If this security is not forthcoming in the near future, I feel that it will reduce the striking power of the charter companies to such a low ebb as to be not worth while worrying about.

The solution is, I believe, a combination of private enterprise and the State, whereby the former would purchase from the latter the aircraft which the Corporations consider to be second-line or redundant, and whereby the State would place long-term contracts with the charter operators for peace-time trooping and similar Government requirements. With this solution, not only would the operators be able to engage in their normal trade, but they would also be available for the execution of emergency requirements, such as the Berlin Air Lift and Operation India. It is submitted that the charter companies should have the sole right to tender for this class of contract, in just the same manner as the State Corporations, by reason of the Civil Aviation Act, have the sole right to operate regular services for the carriage of individual fare-paying passengers.

Comet Jet Airliner Loaned to B.O.A.C.

The second Comet jet airliner produced by the de Havilland Enterprise was handed over to B.O.A.C. at London Airport on April 2. It is one of the two aircraft ordered by the Ministry of Supply for development purposes and has been loaned to the Corporation to make it possible—in advance of delivery of the first Comet of B.O.A.C.'s fleet later this year—to explore the wide field of operating problems which arise in different parts of the world from high speeds and altitudes. The Comet aircraft handed over has the single-wheel type of undercarriage which is replaced in the standard Comets on order for B.O.A.C. by four-wheel bogies. The interior layout is not standard. This aircraft is not fully furnished or soundproofed, and it will not operate on passenger services while on loan to the Corporation. Experimental flights will be made with it between the United Kingdom and Calcutta and a decision about other routes on which it may be flown will depend on the experience thus gained. Delivery of the 14 Comets on order for B.O.A.C. is expected to begin during the summer and it is hoped that by about the end of this year or early in 1952 the type will go into regular commercial service with B.O.A.C.

The twelfth annual flying display and exhibition of the Society of British Aircraft Constructors is to be held at the Royal Aircraft Establishment, Farnborough, from September 11 to 16. For the first four days the display will be open only to guests and technicians. The public will, however, be admitted on September 15 and 16.

Scheduled
FREIGHT Services

BEA operates the largest scheduled freighter system in Europe. For example, there are services between London and the Mediterranean every day of the week. On *Saturday evenings*—BEA freighter aircraft leave London for Nice and Malta. *Monday mornings*—return flight from Malta to Rome and London. *Tuesday, Thursday, Saturday evenings*—freighters leave for Rome. *Fridays, Wednesdays, Sundays*—return flights from Rome to London, calling at Milan on *Wednesdays* and *Fridays*, and Nice on *Fridays* and *Sundays*. Freight is carried, too, on all BEA passenger services. By using BEA freighter services, you can quote earlier delivery dates, and get your goods there first. Packaging and insurance costs are lower, too.

For full details ask your Freight Agent, any BEA office, or telephone Western 7227, Waxlow 4311.

BRITISH EUROPEAN AIRWAYS

THE
MERCANTILE
DRY DOCK Co LTD
JARROW-ON-TYNE

• • •

3 DRY DOCKS

SHIP REPAIRERS ENGINEERS
BOILERMAKERS

• • •

Tel. 4 LINES
67191 JARROW

For ECONOMY
SPEED
SERVICE

fly with CREWSAIR LIMITED
11 Bruton Street, London, W.1

For freight and passenger enquiries apply :—

Managing Agents
Messrs. Lep Air Services Ltd., Sunlight Wharf,
Upper Thames Street, E.C.4. Tel. CEN. 5050

5 *star points of Caltex Service*

No 4 ***Engine circulating oil sample analysis service***

CALTEX as a part of its service to owners of diesel and turbine vessels using Caltex lubricants, takes regular samples of oil from the systems and furnishes analyses to the owners. These analyses with comments give a picture of how the oil is behaving in service and provides valuable indications as to the general efficiency and running condition of the engines so that trouble-free schedules may be maintained.

CALTEX
Marine Lubricants

distributed in the United Kingdom by

REGENT OIL COMPANY LTD.

117, PARK STREET, LONDON, W.1

CALTEX

COAL AND OIL

WORLD TANKER TONNAGE

THE LATEST half-yearly analysis of world tanker tonnage published by Davies & Newman, Ltd., is reproduced below. It shows the state of the world's tanker fleets on January 1. To obtain the potential deadweight capacity of the world's fleets the figure of 1¾ million tons deadweight should be added to the total of 27,205,525 tons to allow for the United States reserve tanker fleet, which is excluded from the table. Since the last analysis was published there has been an increase of about 956,000 tons deadweight in the active tanker fleet. The American active fleet has been reduced by about 150,000 tons d.w., and now forms 26.24 per cent of the world total. The British fleet has increased by about 229,000 tons d.w., and is now 23.3 per cent of the world total, while there has been an increase of about 190,000 tons d.w. in the Norwegian fleet, which forms 14.25 per cent of the world fleet. Despite the construction of a considerable number of steam-driven tankers in the "monster" class, the preponderance of diesel tankers in the smaller sizes has ensured a slight reduction in the proportion of steam tankers over the last six months, from 59.5 per cent to 57.9 per cent. The steam drive is thus not quite maintaining the numerical advantage given to it by the vast American fleet of war-built steam tankers.

Coal in the Economic Survey

THOSE who hoped to find in this year's *Economic Survey* some indication of the level of coal exports which it will be attempted to maintain in 1951 will have been disappointed. Perhaps advisedly, no such forecast is made. At one place in the publication the importance of increasing exports is stressed, while at another it is pointed out that "a substantial reduction" in the volume of coal exports is inevitable. That there will in fact be a large reduction in coal exports is undoubted. Last year coal production from all sources amounted to 216 million tons: inland consumption was 202½ million tons and exports and bunkers totalled 17 million tons, giving an effective run down in stocks in the course of the year of some 3½ million tons, since mitigated to some extent by coal imports. The *Economic Survey* makes the forecasts that production this year will be increased to 219 to 222 million tons, and that, given average weather, inland consumption will increase by 3 to 4 per cent. Taking the total production as 220 million tons, and the inland consumption as 210 million tons (an increase of about 3½ per cent), it appears that there may be about 10 million tons available for rebuilding stocks, exports and bunkers. A reasonable estimate of the coal which will be available for exports and bunkers might thus be about 7 million tons, a figure which will cause no one any satisfaction.

Esso Petroleum Company

The name of the Anglo-American Oil Co., Ltd., the subsidiary in the United Kingdom of Standard Oil Company (New Jersey), has been changed to Esso Petroleum Co., Ltd. The name "Esso," derived from the initial letters of the firm's name, has for a long time been a trademark of Standard Oil (N.J.), and is used as a proname for all the vessels of the group's tanker fleet. The Anglo-American Oil Company was the first overseas subsidiary of Standard Oil, having been formed in 1888 with a capital of £1 million. By the turn of the century it owned a numerous fleet of steamers and four-masted barques. A tanker of 10,500 tons deadweight, which the company ordered from a British yard in 1901, was the largest yet to be built, but this record was soon broken by a vessel—the *Narragansett*, of 12,500 tons deadweight—which remained in service until she was sunk by a submarine in 1917. She was followed in 1907 by the *Iroquois*, which was not only the largest twin-screw oil burning steamer to be placed on the Atlantic service, but was also designed to tow across the Atlantic, in addition to the carriage of her own cargo, a six-masted schooner carrying extra cargo of nearly 2,000 tons of oil. By this time the company was outgrowing its offices in the City of London, and a new building, the present head office in Queen Anne's Gate, Westminster, was occupied in 1910. In recent years perhaps the most important step taken by the company has been the decision to build the Esso refinery at Fawley, now designed to produce six million tons of petroleum products a year.

Bunker Coal Prices

New bunker prices at the following ports have been announced by Cory Brothers & Co., Ltd.:—

Port	Price per ton	Rebate if applicable	Delivery, coal etc.
Las Palmas	202/6	2/- ...	
Teneriffe	202/6	2/- ...	U.K./American f.a.s.
Madeira	202/6	2/- ...	
Dakar	202/6	2/-	American f.a.s. Mole 8
St. Vincent	204/6	2/-	U.K./American f.a.s.

Quantities of 50 tons and under 2/6d. per ton extra.

The price of bunkers at Algiers, Oran and Bona is now 192s. 6d. per ton trimmed, less 2s. 6d. rebate where applicable, with an additional charge for quantities of 75 tons and under.

ANALYSIS OF WORLD TANKER TONNAGE

Vessels of 500 tons gross and above: figures in tons deadweight

Flag		Prior to 1925	1925-1929	1930-1934	1935-1939	1940-1945	1946-1950	Totals	Grand Totals
U.S.A.	Steam	239,577	20,810	34,944	380,833	5,599,596	330,916	6,606,676	7,137,812
	Diesel	36,911	118,482	101,413	83,042	179,517	11,771	531,136	
British	Steam	535,544	138,461	91,791	55,153	1,584,742	367,549	2,773,240	6,339,282
	Diesel	56,680	285,318	240,302	754,903	892,020	1,336,819	3,566,042	
Norwegian ...	Steam	48,099	20,250	11,600	—	373,157	21,887	474,993	3,877,537
	Diesel	—	212,104	506,423	717,729	414,222	1,552,066	3,402,544	
Panamanian ...	Steam	317,674	11,810	15,027	45,596	1,262,425	673,866	2,326,398	2,778,236
	Diesel	18,296	85,224	90,540	65,100	101,553	91,125	451,838	
French	Steam	70,978	35,946	4,189	—	308,962	41,121	461,196	1,051,075
	Diesel	—	62,267	90,877	104,736	67,558	264,441	589,879	
Dutch	Steam	25,076	48,282	—	49,860	166,289	78,845	368,352	877,681
	Diesel	—	33,274	56,103	302,486	58,886	58,580	509,329	
Italian	Steam	232,406	9,060	—	—	347,013	—	588,479	869,348
	Diesel	25,987	13,580	41,496	42,154	104,414	53,238	280,869	
Liberian	Steam	42,645	—	—	—	10,600	558,617	611,862	648,862
	Diesel	—	—	—	—	—	37,000	37,000	
Swedish	Steam	—	—	—	—	—	10,200	10,200	557,719
	Diesel	8,230	20,220	35,020	89,401	190,580	204,068	547,519	
Other Flags ...	Steam	439,776	190,046	16,475	62,800	537,990	295,626	1,542,713	3,067,973
	Diesel	49,676	210,439	307,484	121,871	373,057	462,733	1,525,260	
Totals	Steam	1,951,775	474,665	174,026	594,242	10,190,774	2,378,627	15,764,109	—
	Diesel	195,780	1,040,908	1,469,658	2,281,422	2,381,807	4,071,841	11,441,416	
Combined Totals		2,147,555	1,515,573	1,643,684	2,875,664	12,572,581	6,450,468	**World Total**	27,205,525

ROUND THE SHIPYARDS

Work in Progress on the South Coast

By THE SHIPPING WORLD'S Own Correspondent

THE latest new order of importance reported in the South Coast area during the past few weeks was that of a 5,000-tons gross hull to be built by John I. Thornycroft & Co., Ltd., under sub-contract from Akers mek. Verksted, of Oslo, for Fred Olsen & Co.'s Oslo and Newcastle-on-Tyne passenger and cargo service. A few months ago Thornycroft's completed the hull of the *Blenheim*, a sister ship, for the same service. Successful trials were carried out on this vessel recently after engining and fitting-out by Akers M. V. The *Blenheim* attained a speed of over 16 knots on trials, which should enable her to maintain schedule with a reasonable reserve of power.

On March 7 Thornycroft's launched the river gunboat *Ucayali*, built to the order of the Peruvian Government for service on the River Amazon and tributaries. The naming ceremony of the *Ucayali* was performed by Senora Maria de Odria, wife of the Peruvian Ambassador, who, in a speech following the launch, said that it had been the constant endeavour of Peru to have her warships and merchant ships built in Great Britain. A sister ship, the *Maranon*, is still on the stocks. It is expected that the launch of the second vessel will take place this month, and that both vessels will leave the Solent under their own power for their base at Iquitos, over 2,000 miles up the Amazon. The *Ucayali* and *Maranon* are of 350 tons displacement each on a draught of about 4 ft. They are each 154 ft. 9 in. in length and 32 ft. in breadth and are each installed with two sets of Polar diesel engines of 400 b.h.p.

In addition, Thornycroft's have in course of construction for the Peruvian Government a 600-tons floating dock, which is expected to be launched in June and towed out to its destination.

Naval Work

Other work progressing at the firm's Woolston shipyard has included the all-welded destroyer *Duchess*, which was launched on Monday by Lady Mountbatten, a 650-tons gross salvage vessel for the Mersey Docks & Harbour Board and various smaller craft for export. New tonnage under construction at the Cowes, Isle of Wight, yard of J. Samuel White & Co., Ltd., includes the destroyer *Dainty*, a 3,000-tons refrigerated ship, the *Kadoura*, for the Chargeurs Reunis, Paris, a 110-tons motor cargo vessel for the Island Transport Co., Ltd., a lightship of 285 tons for the Calcutta Port Trust, and a number of smaller craft, including lifeboats for the R.N.L.I.

A recent South Coast launch was that of the 220-tons motor tug *Aguila*, which is being built by Philip & Son, Ltd., at Dartmouth, for the Compania Sud-Americana de Vapores, of Valparaiso, where she is intended for harbour service. Of 110 ft. in length b.p., 25 ft. breadth and 12 ft. 3 in. in depth, she is being installed with a set of British Polar diesel engines developing 680 b.h.p. at 260 r.p.m. In addition to her services as a tug, she is equipped for duties as a water carrier and a salvage and firefighting vessel. She is fitted with fresh-water storage tanks of 160 tons capacity, deck connections for salvage suctions and fire hoses, a 100-tons per hour Drysdale fire pump and a fresh-water pump of the same capacity. Philip & Son, Ltd., have had 10 or 12 ships on the stocks, including two 450-tons gross passenger ferries for the Corporation of Wallasey.

On the ship repair side, Thornycroft's have been busy with the refit of H.M. ships *Caprice*, *Matchless*, *Fancy* and *Onyx*, and the Pakistan ship *Jhelum* (ex R.I.N. *Narbada*). Voyage or routine repairs have been carried out on H.M. transports *Dilwara*, *Empire Fowey*, *Empire Trooper* and *Charlton Star*, the liners *Queen Elizabeth*, *Queen Mary* and *Golfito*, and other vessels.

The refit of the salvage vessel *Salvestor* was completed last month by Camper & Nicholsons, Ltd., and Whites Shipyard (Southampton), Ltd., finished refitting H.M. minesweeper *Rinaldo*. The Southampton Docks ship-repair branch of Harland & Wolff, Ltd., carried out an emergency repair job during the past month to the Lamport & Holt cargo steamer *Debrett*, by fitting a complete new bottom exhaust cylinder and liner to enable her to continue her voyage from Antwerp to Buenos Aires. The firm also dealt with their usual volume of routine repair work to ships of the Royal Mail Lines, Union-Castle Line, Cunard Line, United States Lines, and other vessels.

J. Samuel White & Co., Ltd., Cowes, reached completion stage in the conversion of H.M.S. *Falmouth* to an R.N.V.R. drillship, and she is due to take her station on the Tyne. The firm has also been engaged on the complete refit of H.M. minesweeper *Ready*, and the refit of the Egyptian warship *Ibrahim*, formerly the "Hunt" class destroyer *Cottesmore*

Silley Cox & Co., Ltd., of Falmouth, have had in hand a number of tankers for drydocking and miscellaneous repairs or other requirements, among them being the *British Ardour*, *British Aviator*, *British Guardsman*, *British Renown* and *British Commodore*.

RECENT TECHNICAL DEVELOPMENTS

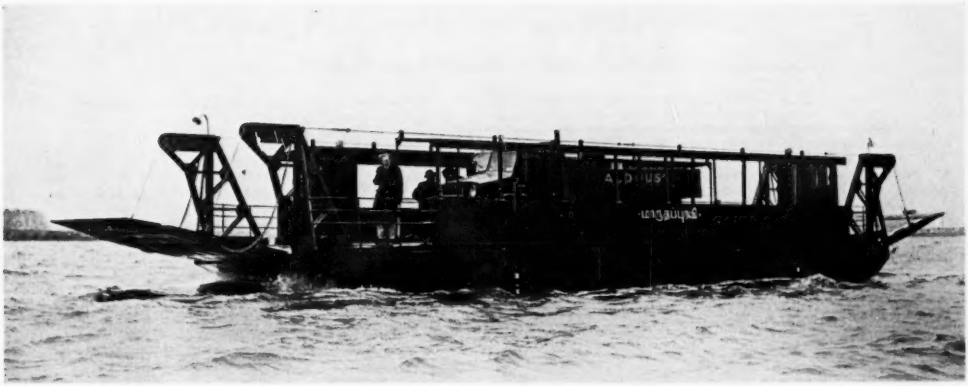
Layer Thickness Meter

A new form of meter of interest to the shipbuilding and engineering industries has been developed by the General Electric Co., Ltd. It is a pocket-sized instrument for the measurement of non-ferrous layers on ferrous bases. Its use enables the thickness of paint, sprayed metal or any other protective layer to be determined within a matter of seconds. The instrument does not require an electrical supply, and is in fact, a magnetic reluctometer operating on the moving-iron principle. A shaped moving iron is mounted at the neutral axis of a powerful permanent magnet. One end of the magnet is fitted with a spherical polepiece of hardened steel which projects through the bakelite case of the instrument. The moving iron, which is spring controlled, takes up a position of equilibrium when the magnet and spring torques are equal and opposite. If the spherical steel tip is then placed on a ferrous plate, the magnetic flux distribution will be disturbed and the moving iron will take up a new position of equilibrium. The scale is calibrated in thickness of the non-magnetic layer. The meter is available in three single-range forms, reading 0-5, 0-10 and 0-30 thousandths of an inch.

Two New Tube Bending Machines

In addition to the already established "Staffa" 4 in. motorised hydraulic tube bending machine, Chamberlain Industries, Ltd., of Staffa Road, Leyton, London, E.10, have brought out a redesigned 2 in. machine with dimensions of 3 ft. 1 in. by 2 ft. 1½ in. by 1 ft. 7 in. Hydraulic power is provided by a Beacham high pressure swash plate pump mounted directly above an 8-tons ram unit. The pump is mounted in its own reservoir of specially selected "Shell Tellus" 27 hydraulic oil. The pump unit is driven by a ½-h.p. electric motor suitable for 220-230-volts single phase, 50-cycles supply, or alternatively a 400-440-volts, three-phase motor. A panel is incorporated in the rear of the housing cover from which extends a 7 ft. length of V.I.R. cable ready for connection to a three-pin plug. A three-way control valve fitted with a relief valve for "forward," "return" and "neutral" positions is operated by a lever at the front of the machine.

The company has also recently produced the "Truset" hand bending machine. This machine consists of two main components, a base and a bending arm. The base is circular and carries lugs suitable for universal mounting on either a bench, a vice, or a special stand. Equispaced around the base are holes for a stop-pin, which, when used in conjunction with an additional stop screw on the bending arm, allows infinite adjustment to any angle of bend position for repetition work. The bending arm, rotating about a centre-pin fitted to the base, consists of two high tensile steel bars carrying an infinitely adjustable bending pin, which fits into the head block at one end and into the handle block at the other.



DOUBLE-ENDED FERRY FOR CEYLON

HOTCHKISS PROPULSION AND NOVEL STEERING SYSTEM

THE PROBLEMS presented by the requirements of a ferry service are often complex, but the design of the motor ferry *Maruthappuravi*, completed recently by Aldous Successors, Ltd., for the Crown Agents for the Colonies, was more interesting than usual in that a very wide range of service conditions had to be covered, so that the craft could work efficiently under widely varying conditions.

The Government of Ceylon had requested the Crown Agents for the Colonies to examine the possibility of supplying power craft suitable for replacement of manually operated ferry boats used on inland waterways and lagoons. These crossings vary in length from 2,000 to 5,000 feet, with approach roads and ramps at each terminal. The depth of water varies from 3 ft. to 5 ft. 6 in. and at certain seasons winds of 30 m.p.h. and cross currents of about 4 knots are experienced. The loading on the ferries is usually about 20/25 passengers and two 6-tons lorries, but occasionally heavier unit loads such as 10-tons rollers have to be transported. The design to be finally selected was prepared by Aldous Successors, Ltd., a firm with considerable experience in the construction of ferries, and the *Maruthappuravi* has now been shipped to Ceylon as a complete unit, after passing through successful trials.

It was obvious that a general service ferry of this nature should preferably be completely double ended and also of shallow draught, and these considerations naturally made the questions of propulsion and steering of prime importance. Diesel propulsion was essential, but as both ends had to be capable of grounding on concrete ramps, normal screw propulsion was out of the question. Various forms of propulsion were considered, and after close collaboration with the Crown Agents and Mr. Donald V. Hotchkiss, the Hotchkiss cone propulsion was accepted in principle, as this gave reasonably good propulsive efficiency without any penalties of increased draught or necessity for underwater appendages.

The final dimensions and characteristics of the ferry are as follows :—

Length over hull	54 ft.
Length over all	75 ft.
Beam (moulded)	18 ft.
Depth (moulded)	4 ft. 9 in.
Load draught	2 ft. 9 in.
Load deadweight	20 tons
Maximum b.h.p.	110
Speed	6½ knots

The hull is of simple chine form, with steel scantlings as light as possible consistent with adequate strength, in view of the draught requirements. Ordinary transverse framing with angle frames and plate floors has been adopted, with shell plating generally ⅜ in. thick except in way of longitudinal girders and parts liable to ground. Two longitudinal girders are worked all fore and aft under deck and on the bottom shell, tied by angle stanchions and diagonal bracing. The deck plating is of 3/16 in. chequer plate in way of traffic deck and ¼ in. thick elsewhere. The two prows are of welded steel construction, with cellular framing and stiffening, sheathed on the upper surface with iroko and fitted with zinc sprayed chequered track plate.

The propelling machinery presented a problem in that as the ferry was to be completely double ended, full reverse power was needed. No mechanical reverse gear could be found to meet this requirement, and finally it was decided to use twin Thornycroft RTR/6 marine diesel engines, each equipped with a special S.L.M. oil-operated reverse gear capable of transmitting full power in either direction. The engines are of standard type, each capable of developing 55 b.h.p. at 2,100 r.p.m., with a service power of 40 b.h.p. at 1,700 r.p.m. under the climatic conditions in Ceylon. In view of the shallow water operation, a closed system of fresh water cooling was provided, the heat exchangers being in the form of external tubes arranged inside a longitudinal recess on the bottom of the ferry.

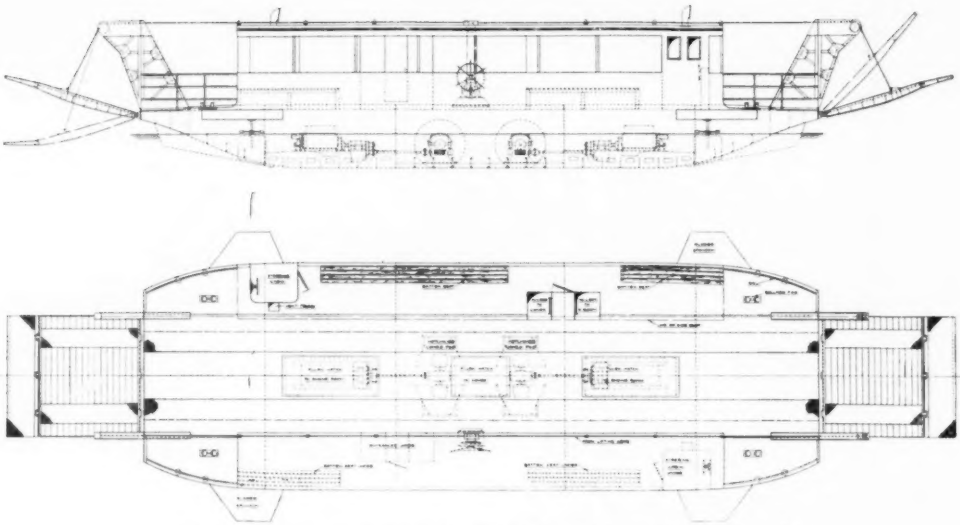
Each engine is coupled through a worm gear to a set of 48 in. diameter Hotchkiss cone propellers of special design. The normal type of cone propeller is designed to give maximum thrust in one direction only, with about 15 per cent loss in the reverse direction, but by using radial blades and symmetrical intake and discharge openings, equal thrust was obtained in either direction. The cone impellers are carried at the ends of the worm gear shafts in cantilever fashion, with stuffing boxes and glands at the large end of the cones so arranged that the main bearings are isolated from the water in the cones by an air gap. All bearings are of the ball bearing type, lubricated from the worm gear box supply.

The cone units are arranged "in train," close together, and are mounted upon a single tunnel running fore and aft, terminating each end about 3 ft. 6 in. beyond the cones. The well known features of the Hotchkiss cone do not need elaboration in this description, but it should be stated that the performance on trial was highly satisfactory, with remarkable freedom from vibration and noise. Advantage was taken of the fact that the cones develop a suction at the smaller end to fit a bilge connection which can, in emergency, be fitted to the main bilge line and be used for pumping out bilge water throughout the ferry.

Steering Problems

The navigational qualities of a ferry of this type always present a difficult problem, as the shallow saucer form, with symmetrical ends, has practically no directional stability. The difficulty is increased by the fact that as the vessel has to take the ground at each end, it is not possible to fit normal rudders, and any form of retractable rudder, while offering a partial solution, brings in the possibility of grounding damage. A further complication is introduced by the fact that as the ferry has to be double ended in every respect, steering must be normal, with the wheel always turning in the same direction as the head of the ship irrespective of the direction of propulsion.

To meet all of these conditions, a new system of steering was produced and patented by Aldous Successors. Two



Profile and general arrangement of the double-ended ferry "Maruthappuravi"

control cabins are fitted, each fitted with all controls for engine operation and steering when the ferry is proceeding in the "ahead" or facing direction. The engine controls, operated by Teleflex gear, cover all necessary operations for starting, fuel control and reverse gear.

Since directional stability of the bare hull was almost negligible, three deep keels were fitted at each end to damp out any violent yawing motions, but it was naturally impossible to control the direction of motion by these fixed fins. As the ferry is liable to ground, the rudders could not project below the keel line at any point, and it was finally decided to use four outrigger rudders, two forward and two aft, all simultaneously controlled by either of the two steering wheels. From each wheel a chain drive is led below deck to a fore and aft torsion shaft, and the port and starboard shafts are then connected by a transverse way shaft and bevel gears. At the termination of each fore and aft shaft, adjacent to the rudder heads, Marles worm gears of the type fitted in road vehicles are arranged, with tillers cross connected to corresponding tillers on the rudder heads. By this means rotation of either steering wheel is instantly transmitted to the rudders, and very positive "four wheel" steering obtained, so much so that on final tests the turning diameter was only about 1½ times the ship's length.

The prow gear presented no innovation, being of hand operated type with hand winch for lifting, the two prows being interconnected to give partial balance for easing the load. A fairly comprehensive equipment was supplied with the vessel, and electric lighting fitted for night operation, the power being supplied from engine-driven dynamos and C.A.V. lead acid batteries.

On loaded trials in the River Colne a speed of 5½ knots was obtained under reasonable weather conditions, with average engine speed of 1,650 revs. per minute. On completion the ferry was towed to London docks and shipped to Ceylon as a complete unit, temporary lifting eyes and wire slings being supplied by the builders.

THE Thomas Gray Memorial Trust prize of £50 has been awarded to Capt. W. R. Symon, master of the tanker *British Valour*, for his essay on "The Training of the Merchant Navy for Joint Operations with the Royal Navy in Time of War."

AT THE annual general meeting of the Society of Consulting Marine Engineers and Ship Surveyors, Mr. George M. Cousins of Messrs. John B. Cousins & Sons (Glasgow), was elected president for the ensuing year in succession to Mr. Jas. Young (Newcastle), Mr. C. T. Casebourne (London) was elected senior vice-president and Mr. John Clarke (Hull), junior vice-president.

RECENT PUBLICATIONS

A booklet giving the dates of bank and public holidays in South and Central America, Spain and Portugal has been issued by the Bank of London & South America, Ltd., 6-8 Tokenhouse Yard, London, E.C.2. Copies may be obtained free of charge.

The Ministry of Transport has issued Amendment No. 4 to the Ship Captain's Medical Guide, 1946. It is published by H.M. Stationery Office, price 1s. 3d. Amendment No. 5 to the 1945 edition of Merchant Shipping Medical Scales has also been issued.

The 14th edition of *Converting a Business into a Private Company*, by Stanley Borrie, has been published by Jordan & Sons, Ltd., 116 Chancery Lane, London, W.C.2, price 3s. 6d. This booklet discusses the advantages of conversion and outlines all the steps that must be taken from beginning to end.

The *Guide des Ports Francais* for 1951 has now been published. It gives complete information of facilities in French and French North African ports, together with comprehensive directories. It will be supplied on demand by Publicité Jacques Avierinos, 30 rue Senac, Marseilles, for the sum of 200 francs to cover cost of postage.

Institute of Marine Engineers

At the annual general meeting of the Institute of Marine Engineers, Mr. S. F. Dorey was elected president for the ensuing year. The following were elected vice-presidents: London, J. Calderwood, H. J. Wheadon; Swansea, G. Thompson; Glasgow, G. R. Grange; Cardiff, I. Blackmore; Leith, Sir William Wallace; Newcastle-upon-Tyne, Sir Summers Hunter; Belfast, C. C. Pounder; Royal Navy, Rear-Admiral(E) F. E. Clemitson. The local vice-presidents are: Antwerp, H. C. Murray; Melbourne, P. A. McIntyre. The following were elected members of council: Messrs. J. E. Church (superintendent engineer, South American Saint Line), F. J. Colvill (engineer surveyor-in-chief, Ministry of Transport), S. Hogg (chief examiner of engineers, Ministry of Transport), H. R. Humphreys (director, Harland & Wolff, Ltd., London), A. Logan (chief superintendent engineer, Anglo-Saxon Petroleum Co., Ltd.), J. C. Lowrie (chief superintendent engineer, Andrew Weir & Co., Ltd.), R. Munton (superintendent engineer, Clan Line), H. N. Pemberton (assistant chief engineer surveyor, Lloyd's Register of Shipping).

DIESEL TUG FOR COPENHAGEN

EQUIPPED WITH VARIABLE PITCH PROPELLER

THE diesel-engined tug *Grane*, which went on trials on March 16, is successor to the present steam tug *Grane*, belonging to the Copenhagen Port Authority and built by Burmeister & Wain in 1861. The new *Grane* has also been built by Burmeister & Wain, who transferred the construction of the actual steel hull to Svendborg Skibsværft. After the launching on January 10, the *Grane* was towed to B. & W. in Copenhagen, where the fitting-out has taken place.

The *Grane*, which is B. & W's Yard No. 686, has the following main dimensions :—

Length p.p.	22.55 m.
Beam	6.55 m.
Depth	3.28 m.
Gross tonnage	99.5 tons

The ship has been built to Lloyd's Register of Shipping + 100 A.1, as a tug strengthened for navigation in ice. The engineroom is amidships, and accommodation for the crew is before the engineroom. The hull has lines suitable for towing and ice-breaking, and welding has been used as much as possible. The wheelhouse is made of aluminium, and it is notable that it has been partly welded. It is provided with large windows.

Propelling Machinery

The main engine is a B. & W. 6-cylinder, 4-stroke diesel developing 640 i.h.p. at 220 r.p.m., which during ice-breaking may be forced to 900 i.h.p. at 310 r.p.m.

The propeller, which is cast of stainless steel, is made by Karlstads Mekaniska Verkstad, and is a KAMEWA variable pitch propeller. The position of the blades and the revolutions of the engine can be adjusted by means of handles from the wheelhouse. There are three horizontal steering wheels fitted, mounted so as to enable the helmsman to reach one of the wheels and reversing device for the propeller blades from practically any position in the wheelhouse. The steering gear has an electro-hydraulic steering engine, designed so that if the electric arrangement fails, it may be worked hydraulically by hand. The gear has been constructed by Svendborg Skibsværft.

The auxiliary machinery comprises one 5-cylinder and one 2-cylinder auxiliary diesel engines of B. & W's make, and two Frichs auxiliaries, each coupled to a 200 cu.m. sea water pump, both of which can be used as fire pumps. The fire-fighting equipment consists of two water guns, each with a capacity of 200 cu.m. of sea water per hour, and a foam extinguisher plant. Besides, there are five hose unions on either side for 3 in. fire-hoses.

Navigation Equipment

The vessel is fitted with modern navigational instruments such as echo-sounder and Decca. There are wireless telephone, loudspeaker arrangement, and two searchlights operated by wheels in the wheelhouse. The mast is collapsible so as to enable the boat to pass underneath bridges in the port. It has a 2-tons derrick operated by means of the anchor winch. Anchor winch and warping capstan aft are electric, of Thomas B. Thrige's make.

Besides being used for towing and ice-breaking, the *Grane* will also be used for taking guests of the Port Authority. A small saloon has therefore been arranged underneath the wheelhouse, and an awning may be rigged on the deck.

Forward there is accommodation for captain and chief engineer, one single and two double cabins, and a mess with access to a toilet room. Saloon, captain's and chief engineer's accommodation have furniture of polished mahogany, the other rooms of lacquered oak.

Single-screw motor tug "Grane"

The wheelhouse, showing two of the three horizontal steering wheels

Orders for Clark-Sulzer Engines

The popularity of the Clark-Sulzer single-acting two-stroke airless injection diesel engine is clearly shown by the orders placed for such units, at present numbering 12 with a total power output of 16,000,000 horsepower. These orders do not include the units installed in the recently completed colliers *Portsmouth* and *Ardingly*, built for Stephenson Clarke, Ltd. Colliers feature prominently in the types of vessel to be fitted, six installations being supplied for such a purpose. A unit of 1,475 h.p. is being supplied for a cargo vessel being built by Henry Robb, Ltd., for the Union Steamship Co. of New Zealand, and twin units, totalling 3,000 h.p., are being fitted in a cattle carried for Coast Lines, Ltd., which is being built by the Ardrossan Dockyard, Ltd. Two 1,800-h.p. geared sets, two engines on each shaft, are intended for Norwegian ships operating on the Great Lakes in summer and in the Mediterranean fruit trade in winter. In addition to the marine orders there are at present on order six sets of land engines for power station installations in Australia.

OFFICIAL NOTICES

New Companies

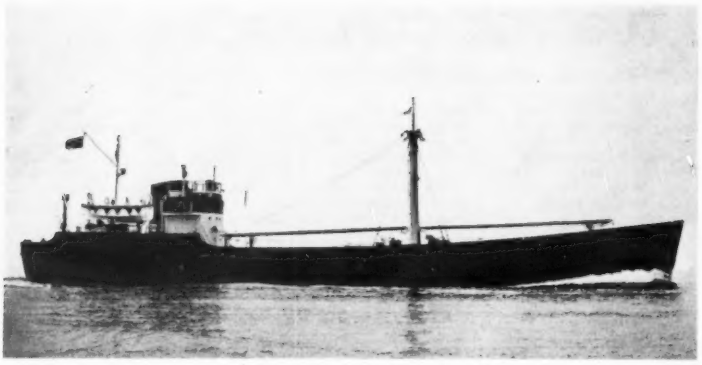
CHAPMAN & WILLAN, LTD., Maritime Buildings, King Street, Newcastle-on-Tyne.—Registered March 19. To carry on business of shipbrokers, etc. Nominal capital: £50,000 in £25 shares. Directors: C. I. Willan, South Park House, Hexham, Northumberland; R. F. Chapman, Fairlawn, Wylam, Newcastle-on-Tyne; Miss H. D. Chapman and Miss E. Willan.

[Information from *Jordan's Daily Register of New Companies*]

Change of Names

M. A. SYNDICATE, LTD., 1, Royal Exchange Avenue, London, E.C.3.—Name changed to M. A. Shipping & Trading Co., Ltd., on March 8.

MANN & VINCENT (TRAVEL AND FREIGHT) LTD., Sceptre House, 169/173, Regent Street, London, W.2.—Name changed to Mann & Vincent (Travel), Ltd., on March 8.

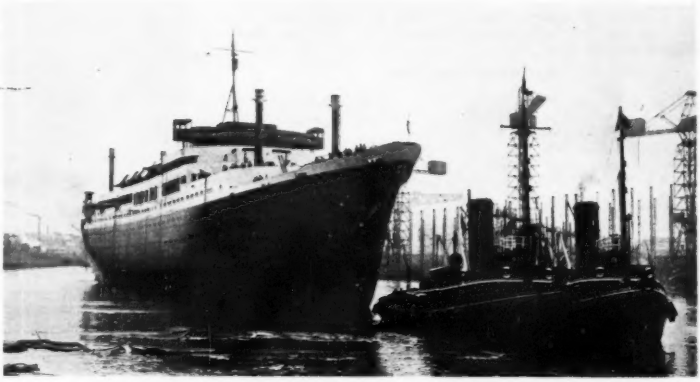


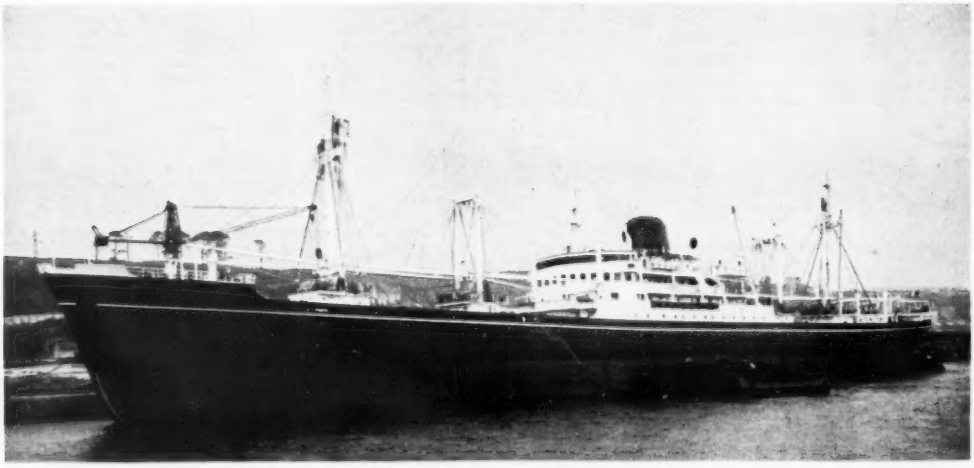
Coastal Cargo Liner " London "

The delivery has taken place by the Burntisland Shipbuilding Co., Ltd., of the single-screw motor coastal cargo liner *London*, built for the Dundee, Perth & London Shipping Co., Ltd. Of 706 tons gross, the vessel carries a deadweight of 875 tons on a draught of 12 ft. 9 in. Her principal dimensions are 201 ft. length b.p., 36 ft. 3 in. breadth and 21 ft. 1 in. depth moulded to shelter deck. There are two cargo holds with corresponding tweendecks served by large hatches. Cargo handling is carried out by four derricks operated by high-speed electrically-driven winches. The propelling machinery, supplied by British Polar Engines, Ltd., consists of an 8-cylinder two-stroke direct reversing airless injection diesel engine. Arranged aft, the engine develops 1,280 b.h.p.

Launch of the " Aureol "

The twin-screw passenger liner *Aureol* was launched from the Linthouse shipyard of Alexander Stephen & Sons, Ltd., on March 28. Of about 14,000 tons gross, the *Aureol* has dimensions of 538 ft. length, 70 ft. breadth and 36 ft. 6 in. depth, with a designed draught of 25 ft. She is intended for her owners' service between the United Kingdom and the West Coast of Africa, and will have accommodation for 265 first-class and 100 cabin-class passengers. All the first-class cabins will have private bathrooms or cubicles with washbasin and toilet. The two main engines comprise 4-cylinder opposed-piston Doxford type diesels. Each engine will be directly coupled through shafting to its own propeller, the combined output being 10,860 i.h.p., or 9,400 b.h.p., at 118 r.p.m. The *Aureol* will have a speed of 16 knots





French Cargo Liner " Meinam "

The *Meinam* is another of the series of " M " type cargo liners ordered by Compagnie des Messageries Maritimes. Built by the Arsenal de Brest, the *Meinam* is a twin-screw motorship of about 7,350 tons gross. She has a deadweight of about 11,000 tons and is of 536.8 ft. in length o.a., 502 ft. b.p., 64.3 breadth and 41 ft. in depth to shelter deck. For the handling of cargo there are sixteen derricks of five tons and four of eight tons lifting capacity, with 20 attendant electric winches. In addition there are two heavy-lift derricks, one of 80 tons and the other of 40 tons capacity. Accommodation is provided for twelve passengers. The twin screws are driven by two 8-cylinder two-stroke Sulzer diesel engines developing a total of 10,000 h.p. at 120 r.p.m., for a service speed of 16 knots

NEW CONTRACTS

Yards in Great Britain and Northern Ireland

Shipowners	No. of Ships	Type	Approximate Tonnages Gross	Approximate Tonnages Deadweight	Dimensions (ft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
North Thames Gas Board	1	Collier	—	4,600	—	—	Tr.-exp. steam	—	N.E. Marine	Wm. Pickersgill
North Thames Gas Board	2	Colliers	—	2,700 (each)	—	—	Diesel	—	—	Grangemouth Dockyard and S. P. Austin (1 each)
British Electricity Authority	1	Collier	—	4,600	—	—	Tr.-exp. steam	—	N.E. Marine	S. P. Austin
Lykiardopulo & Co.	1	Cargo*	—	10,000	—	13.5	4-cyl. Doxford diesel	—	N.E. Marine	Furness S.B.
—	3	Tankers	—	1,500 (each)	—	—	—	—	—	Lobnitz & Co.
Dene Shipping Co.	1	Cargo	—	8,900	—	10.5	Tr.-exp. steam, Bauer-Wach turb.	—	Shipbuilders	Wm. Gray
Ald Shipping Co.	1	Coaster	—	1,070	—	—	—	—	—	Chas. Hill
Moor Line	1	Cargo	—	9,300	—	13	Sin.-scr., 4-cyl. Doxford diesel	3,300	Shipbuilders	R. & W. Hawthorn, Leslie
For service in Scheldt	1	Bucket and pump dredger	—	—	—	—	Steam	—	—	Lobnitz & Co.
For service at Bristol	1	Hopper barge	—	1,700	—	—	Diesel	—	British Polar Engines	Lobnitz & Co.
Sigval Bergesen, Stavanger (on behalf of Skibs A/S Ringfonn)	1	Tanker	—	18,000	—	—	—	—	—	Lithgows
Associated Humber Lines	2	Cargo liners	—	1,100	—	—	Polar diesel	2,400	John G. Kincaid	Hall, Russell
Union-Castle Line	1	Pass. & cargo liner	17,300	—	—	—	Tw.-scr. turbine	—	—	Harland & Wolff, Belfast

Commonwealth and Foreign Yards

Finska Angfartyg A/B, Helsinki	1	Cargo	—	1,600	—	—	Diesel	—	—	Werf Jan Smit, Czn., Alblasser dam
Oranje Line	1	Cargo	6,450	—	—	—	Werkspoor-Lugt diesel	—	—	Boele's Scheeps. en Mach., Bolnes
Cie. de Transports Oceaniques, Paris	1	Cargo	7,300	—	—	—	Sulzer diesel	5,600	—	Werf de Noord Alblasserdam
For Indonesia	2	Coasters	—	840 (each)	—	—	M.A.N. diesel	1,100 (each)	—	Werf Gusto Firma A.F. Smulders, Schiedam
For Indonesia	6	Patrol vessels	—	—	118.1 (long)	—	Werkspoor diesel	450 (each)	—	Werf Gusto Firma A.F. Smulders
For Indonesia	18	Harbour vessels	—	—	—	—	Kromhout diesel	40 (each)	—	Werf Gusto Firma A.F. Smulders
Det Ostasiatiske Kompagni,	1	Cargo	—	10,000	445 b.p. × 61 × 29.8	—	Diesel	6,450	—	Deutsche Werft, Hamburg
Kon. Rotterdamsche Lloyd, Rotterdam	1	Cargo	—	10,500	—	15	M.A.N. diesel	7,500	—	C. Van der Giessen & Zonen Krimpen a/d Yssel

* One of the three orders for cargo vessels previously reported in THE SHIPPING WORLD as having been placed by unknown owners with the Furness Shipbuilding Co., Ltd

LAUNCHES

Yards in Great Britain and Northern Ireland

Date	Shipowners	Ship's Name and/or Yard No.	Type	Approximate Tonnages Gross	Approximate Tonnages Deadweight	Dimensions (ft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
—	Den Norske Amerikalinje, Oslo	*Kongsfjord*	Cargo	6,000	8,600	—	15	2-str. B. & W. diesel	—	John G. Kincaid	Lithgows
Mar. 27	Corp. of Trinity House	*River Thames* (3685)	Pilot cutter	44	—	—	—	Diesel	—	—	Hugh McLean & Sons
Apr. 3	Falmouth Corpn.	*Celia B.*	Water tanker	36	—	52 w.l. × 15 × 6.33	—	Sin.-scr., red. geared Gardner diesel	72	—	Philip & Son
Apr. 5	Union-Castle Line	*Rhodesia Castle*	Pass. & cargo liner	17,300	—	—	—	Tw.-scr. turbine	—	—	Harland & Wolff, Belfast

TRIAL TRIPS

Yards in Great Britain and Northern Ireland

Date	Shipowners	Ship's Name and/or Yard No.	Type	Approximate Tonnages Gross	Approximate Tonnages Deadweight	Dimensions (ft.)	Speed (knots)	Propelling Machinery	Total h.p	Engine Builders	Shipbuilders
—	British Electricity Authority	*Battersea* (407)	Collier	1,720	2,700	260 b.p. × 39.5 × 18.5	10.5	Sin.-scr., 8-cyl., 2-str. Sulzer diesel	1,280	George Clark (1938)	S. P. Austin
—	British Tanker Co.	*British Rover* (665)	Tanker	6,300	8,400	423 o.a. × 56 × 30.08	11	Sin.-scr., 3-cyl. diesel	—	Wm. Doxford	Jos. L. Thompson
Mar. —	Suez Canal Co.	*Jean Mantelet*	Pilot vessel	700	—	147.5 × 33 × 16	14.5	Sin.-scr. sin.-red. geared diesels	1,400	—	Lobnitz & Co.
Mar. —	Furness, Withy & Co.	*Ocean Monarch*	Pass. cruiser	13,970	—	516 o.a. and 475 b.p. × 72 × 39	18	Tw.-scr., dble.-red. geared turbine	11,500	Shipbuilders	Vickers-Armstrongs, Walker
Mar. —	Dansk Cement Central, Copenhagen	*Portland* (253)	Cement carrier	1,104	1,400	220 × 34 × 17	12	Sin.-scr., 8-cyl., 2-str. Atlas Polar diesel	1,330	British Polar Engines	George Brown & Co. (Marine)
Mar. 22	British Tanker Co.	*British Builder* (782)	Tanker	8,690	12,250	490 o.a. × 27.625 (draught)	—	Sin.-scr., 4-cyl. diesel	—	Shipbuilders	Wm. Doxford
Mar. 30	Clan Line	*Clan Sutherland* (475)	Cargo liner	8,450	11,100	476 b.p. × 66 × 40.66	16.5	Sin.-scr., dble.-red. geared turbine	10,340	Parsons Marine	Greenock Dockyard

Commonwealth and Foreign Yards

—	Robert M. Sloman Jnr.	*Algier* and *Valencia*	Cargo	1,500 (each)	2,300 (each)	282.16 × 42 × 11.33 (draught)	12	Sin.-scr., 4-str. M.A.N. diesels	1,600 (each)	—	Deutsche Werfte, Hamburg
—	Sartori & Berger	*Geheimrat Sartori* (924)	Cargo	984	1,650	—	12	Krupp diesel	1,100	—	Howaldtswerke A.G., Kiel

MARITIME NEWS IN BRIEF

From Correspondents at Home and Overseas

AT THE annual meeting of the Institute of Marine Engineers Dr. S. F. Dorey (Chief Engineer Surveyor, Lloyd's Register of Shipping) was elected president for the ensuing session. The ballot for new members of council resulted as follows: Messrs. J. E. Church, F. J. Colvill, S. Hogg, H. R. Humphreys, A. Logan, J. C. Lowrie, R. Munton and H. N. Pemberton, members, and Mr. R. A. Collacott, associate member. Mr. James Turnbull was elected chairman of council.

IT HAS been announced in Oslo by Fearnley & Eger and A. F. Klaveness & Co. A/S that the Fern Line will in future trade under the name of Fern-Ville Lines. The new name has been chosen to emphasise the joint nature of the service maintained by the two companies. There will be no change in the present organisation of the joint service and operations will continue under the management of Fearnley & Eger.

THE trade functions of the British Chamber of Commerce for Indonesia having been transferred to the London Chamber of Commerce, its remaining activities have been transferred to a new organisation styled the Indonesia Association, Inc. Membership is available to any British subject or corporation associated with trade, commerce or shipping with or to Indonesia. Its address is 119 Fenchurch Street, London, E.C.3.

THE DEATH has occurred of Joseph J. Barrie, sole partner in the firm of Charles Barrie & Sons, Dundee, shipowners and insurance brokers.

A MODEL of the cable ship *Monarch*, built by Swan, Hunter & Wigham Richardson, Ltd., Wallsend, for Cable & Wireless, Ltd., is to be on show at the Festival of Britain.

SIR JAMES MILNE was elected chairman of the Ship Mortgage Finance Co., Ltd., at the first meeting of the board of the company.

POLISH sea fishing has been organised into three combines, covering the eastern and western sections of the coast and deep sea fishing respectively.

THE DEATH has occurred of Mr. J. A. Blair, director of G. T. Gillie & Blair, Ltd., shipbrokers, of Newcastle-on-Tyne.

• • • •

AS A TRIBUTE to the men who build Shell tankers and the men who sail in them, a four-day photographic exhibition is being presented by the Anglo-Saxon Petroleum Company, Ltd., this week at Lloyd's in Royal Mail House. After its initial showing, the exhibition—one of the finest of its kind to be seen for a long time—will tour shipping circles and institutions throughout the United Kingdom. The 100 or more photographs taken at sea are representative of a collection of some 500 which form a record of the maiden voyage to Kuwait of the 28,000-tons deadweight tanker *Velutina*.

THE DEATH has occurred at the age of 72, of Mr. D. C. Endert, Jr., for more than 37 years a director of the Rotterdamsche Droogdok Maatschappij N.V., and delegate director of the Scheepsbouw Mij. Nieuwe Waterweg. Mr. Endert was a member of the Netherlands committee of Lloyd's Register of Shipping, a member of the Institution of Naval Architects and the Institute of Marine Engineers, and a president of the Netherlands Technical Society.

MISS M. G. GUILLUM SCOTT has been appointed to succeed Miss P. Wood as information officer at the Orient Line's chief passenger offices. Miss Scott joined the Orient Line from one of the Festival of Britain committees, where she acted as executive assistant to the managing director.

MR. C. J. HIGGINSON has retired from the secretaryship of United Baltic Corporation, Ltd., and has been elected to the board of the Corporation. Mr. Donald MacLaren has been appointed secretary in his place.

IMPORTS entering Great Britain through the port of Bristol in the year ending on March 31 amounted to 2,968,993 tons, as against 3,202,679 tons for the previous twelve months. Foreign exports amounted to 104,097 tons, as against 111,678 tons.

SAR-REZ wood finishes are to be used in the refrigerated fruit ship at present being built by J. Samuel White & Co., Ltd., for French owners. This is the third ship built by this firm in which Sar-Rez panelling has been used.

A SURVEY of economic and commercial conditions in Costa Rica has been published by H.M. Stationery Office, price 1s. 3d. net.

• • • •

SCOTCH boilers on order at the two Sunderland works of the North Eastern Marine Engineering group for foreign yards number 25, and are for yards in Norway, Holland, New Zealand, Australia and Turkey. They will be installed in ships for Norway, Brazil, Holland, New Zealand, Panama, France, Australia and Turkey. These boilers are in addition to boilers which are to be installed in the complete machinery plants being built by the North Eastern group.

MR. I. LUBBOCK, head of the fuel oil technical department of the Shell Petroleum Co., Ltd., from 1926 until 1945, and since then head of the internal combustion turbine section of the company's sales technical advisory department, has retired. He remains an honorary consultant to the Royal Naval Scientific Service and a member of three committees of the Aeronautical Research Council.

THE MINESWEEPER *Brave* has been refloated after going ashore at the entrance to the Tyne and taken to Palmers yard at Jarrow for docking and examination. After being refitted by T. R. Dowson & Co., Ltd., Tyne Dock, the vessel will be used as a drill ship for the R.N.V.R. at South Shields.

THE Engineering, Marine and Welding Exhibition will be held at Olympia, London, from August 30 to September 13. Engineer Vice-Admiral Sir Harold Brown has accepted the position of Honorary President of the Exhibition, which this year will include the Foundry Trades Exhibition.

MR. C. M. VIGNOLES has been appointed managing director of Shell Mex & B.P., Ltd., in succession to Mr. C. M. Merrick, who has retired. Mr. Vignoles joined the Royal Dutch Shell Group in 1924, serving in the Far East during the early part of his career. In 1932 he was transferred to the fuel oil general department in London. He served as a member of the Overseas Supply Committee of the Petroleum Board and was awarded the O.B.E. in 1946. After the war he was appointed eastern area manager of the Shell Petroleum Co. and became a director of Shell Mex & B.P. in 1950

MR. G. WEST BYNG, owing to ill health, has resigned as chairman of the Tees Conservancy Commissioners, after serving for six years in that capacity. Mr. West Byng, who is an executive director of Dorman Long & Co., Ltd., and a director of Redpath Brown & Co., Ltd., and Tees Side Bridge & Engineering Works, Ltd., was the driving force behind the Tees Conservancy Act of 1946, which secured Parliamentary sanction for the building of new deep water docks nearer the mouth of the Tees and also the construction of new oil berths

Telegrams Antwerp : DEKEYSER

Telephone : Antwerp 33.78.10

AGENCE MARITIME DE KEYSER THORNTON S.A.

ESTABLISHED OVER 100 YEARS

Shipbrokers, Steamship and Regular Liner Agents

ANTWERP

14, Longue rue de l' Hôpital

ASSOCIATED COMPANIES :

E. THORNTON & SON, LTD
28, Baldwin Street,
BRISTOL

DE KEYSER EXPEDITIONS S.A.
(*Forwarding*)
14, Lg. rue de l' Hôpital
ANTWERP

A. M. DE KEYSER THORNTON S.A.
11, Place d'Armes,
GHENT

VOYAGES DE KEYSER THORNTON S.A.
(*Passenger & Travel*)
Shell Building, 53, Cantersteen
BRUSSELS

MORY & Co LTD

CUNARD HOUSE,
Leadenhall Street,
LONDON · E.C.3

Telephone : AVENUE 3434 (20 lines)

Telegrams : MORYAIR

Teleprinter : AVENUE 1433

AIRPORT OFFICES AT:

London Airport,
Heathrow,
Nr. Feltham, Middx.
Tel. : Hounslow 7711
(ext. 508)

Gatwick Airport,
Horley,
Surrey.
Tel. : Horley 1510
(ext. 39)

Northolt Airport,
Ruislip.
Tel. : Waxlow 4311
(ext. 376)

Blackbushe Airport,
Camberley, Surrey.
Tel. : Camberley 1600 (ext. 54)

Bovingdon Airport,
Nr. Hemel Hempstead, Herts.
Tel. : Bovingdon 2296

ALL TERMINAL SERVICES

(General Supervision, Customs Clearance, Loading, Unloading, Cartage and Storage, etc.)

Agency to Owners and Charterers

"SUN" TUGS *for Thames, Coastal and Sea Towage*

S.T. "SUN XVII."

LARGE FLEET OF POWERFUL TUGS . . .

Fitted with Fire-Monitors, and Powerful Pumps for Fire, Salvage and Oil Bunkering. Steam supplied to vessels

. . . FOR ALL PURPOSES

Tugs fitted with W/T, R/T, V.H.F. and D/F

Telephone Service between Thames Tug Station and Coast

Telephone Nos :

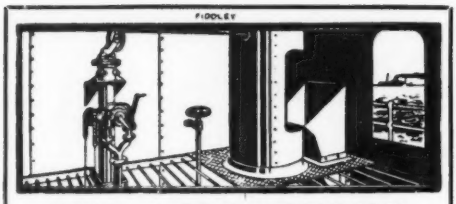
City Office - - ROYal 1328/9 & 3355
Wapping Office - ROYal 6921/4 & 5325/6
*King George V Dk. Office - Alb. Dk. 2278/9
*Gravesend Office - GRAVESEND 4231/2

**Available for Night and Sunday use.*

Telegrams and Radio Telegrams
"Skiffs Phone London"

W. H. J. ALEXANDER, LTD.

44, Leadenhall St., E.C.3. *And at* Wapping, London, E.1



THE "CROMPTON"

Atmospheric Silent Ash Hoist

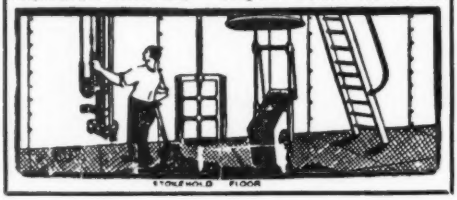
Operated from Stokehold floor
Overtime unnecessary.
Ashes discharged by men on watch.

BLUNDELL & CROMPTON LTD.

Engineers · Ship Repairers · Founders · Coppersmiths

Head Office and Works
West India Dock Road, LIMEHOUSE, LONDON, E.14.
Branch Works, Tilbury Docks, Essex

Telephone: EAST 3838 (3 lines). Telegrams: "Blundell." Phone: London



UNITED STATES LINES

Regular Frequent Service to

NEW YORK

BOSTON, PHILADELPHIA, BALTIMORE & HAMPTON ROADS
FROM
LONDON, SOUTHAMPTON, LIVERPOOL, GLASGOW and BELFAST

For sailings and all information apply

LONDON: 38, Leadenhall St., E.C.3 (Royal 6677)
LIVERPOOL: Wellington Buildings, 7, The Strand (Central 1931 6)
GLASGOW: 179, West George St., C.2.
BELFAST: 67/69 HIGH STREET (Belfast 25451)

Or any authorised Agents

BROCKLEBANK & WELL LINES

GLASGOW and LIVERPOOL to CALCUTTA

For Rates of Freight and further particulars, apply to Alex. Howden and Co. Ltd. 107/112, Leadenhall Street, London, E.C.3; P. Henderson & Co., 95, Bothwell Street, Glasgow; The Cunard Steam-Ship Co. Ltd., Bradford, Birmingham; Bigland, Hogg & Co. Ltd., Zetland Bldgs., Middlesbrough; THOS. & JNO. BROCKLEBANK, Ltd., Cunard Building, Liverpool. And Manchester Dundee and Sheffield.

MIDDLESBROUGH and LONDON to COLOMBO MADRAS and CALCUTTA

For Rates of Freight and further particulars, apply to Gosman & Smith, Ltd., 96/98, Leadenhall Street, E.C.; Bigland Hogg & Co., Ltd., Middlesbrough; of the Owners THOS. & JNO BROCKLEBANK LTD. LIVERPOOL.

SCINDIA STEAM NAVIGATION Co. LTD

Regular Freight & Passenger Service
between U.K. and Continent and

INDIA & PAKISTAN

Freight Services between

INDIA & PAKISTAN and U.S.A.

General Agents for U.K. & Continent:
SCINDIA STEAMSHIPS (London) LTD.,
54, Billiter Bldgs., 49, Leadenhall St., London, E.C.3

PALM LINE
LIMITED

Palm Line operates a frequent and reliable service of modern cargo liners between West Africa, the Continent and Great Britain

CARGO LINERS LINKING
WEST AFRICA & EUROPE

UNILEVER HOUSE, BLACKFRIARS, LONDON, E.C.4
AFRICA HOUSE, MERSEY ST., LIVERPOOL 1

GELLATLY, HANKEY & CO. LTD.

REGULAR SERVICES FROM

United Kingdom to Egypt, Red Sea, India, Ceylon, Africa, Straits Settlements and Far East

For Freight, Passage, Forwarding and Insurance, apply to:
GELLATLY, HANKEY & CO., LTD.,
Dixon House, 1, Lloyd's Avenue, LONDON, E.C.3
or 23 Pall Mall, S.W.1, Manchester, Liverpool, Glasgow

THE "DUNSTOS" SHIPS FITTINGS

are just what you need for your ships.

PATENT RUDDER BRAKES, & RUDDER CARRIERS
PATENT "Z" TYPE CARGO BLOCKS
(the latest in Blocks)
IMPROVED WARPING GUIDES,
(with Cast Steel Base)
PATENT HATCH LOCKING BARS
to comply with new Load Line Rules of January 1st, 1947.
(Thousands Fitted)
LIFEBOAT BLOCKS (various types)
SPRING BUFFERS for Steering Gear (various types)

Ask for Illustrations, from the Makers:—

TAYLOR, PALLISTER & CO. LTD.
Engineers & Ship Repairers,
DUNSTON, GATESHEAD, 11.
TEL. ADD. "REPAIRS" GATESHEAD.

ELLERMAN LINES

World-Wide Services

Linking

U.K. CANADA U.S.A.

with

SOUTH & EAST AFRICA
PORTUGAL, MEDITERRANEAN,
EGYPT, LEVANT & BLACK SEA,
RED SEA & PERSIAN GULF
INDIA & PAKISTAN,
CEYLON & BURMA
MALAYA, PHILIPPINES, CHINA & JAPAN,
AUSTRALIA & NEW ZEALAND.

Hall Line, Ellerman & Bucknall Line,
City Line, Ellerman Line
Papayanni Line,
Westcott & Laurance Line,

Head Office
184-7, LEADENHALL STREET,
LONDON, E.C.3.
LIVERPOOL—Tower Building,
Water Street
GLASGOW—75, Bothwell St., C.2

World-Wide Services

WORLD WIDE CARGO SERVICES

CLAN LINE

For details apply :

CAYZER, IRVINE & Co., Ltd.

LONDON · LIVERPOOL · GLASGOW

BLUE STAR LINE

EXPRESS LINER SERVICES

WEST INDIES & SPANISH MAIN
SOUTH AFRICA, AUSTRALIA,
BRAZIL & ARGENTINA

or **SAILINGS**, Freight, Insurance and Passages, apply :—

BLUE STAR LINE LTD., 31-33, LIME ST., E.C.3
Manchester, Birmingham,
Liverpool : Lamport & Holt Line Ltd. Glasgow : J. S. Nowery & Co.
Chief Passenger Office
No. 3, Lower Regent Street, London, S.W.1.

FURNESS LINES

FURNESS LINE

London to Philadelphia and New York.

FURNESS WEST INDIES LINE

New York to U.S. Virgin Islands, British & French West Indies, Venezuela and Trinidad.

Newfoundland and Canada to U.S. Virgin Islands, British & French West Indies, Venezuela & Trinidad.

FURNESS RED CROSS LINE

New York to Saint John, N.B./Halifax, N.S./ St. John's and Corner Brook, N.F.

FURNESS-WARREN LINE

Liverpool to St. John's, Newfoundland, Halifax, N.S., and Boston.

FURNESS PACIFIC SERVICE

Manchester to Los Angeles, San Francisco, Victoria and Vancouver, B.C., via Panama Canal.

Loading Brokers :—Manchester Liners Ltd. Manchester 2.

FURNESS BERMUDA LINE

New York to Bermuda.

JOHNSTON WARREN LINE

Antwerp, Hamburg and Liverpool to Piraeus, Volo, Thessaloniki, Izmir, Haydar Pasha, Istanbul, Black Sea, Roumanian and Danubian Ports

For further information apply :—

FURNESS WITHY & CO., LTD.,

Furness House, Leadenhall Street, London, E.C.3.
Also at LIVERPOOL, GLASGOW, LEITH, MIDDLESBRO' AND NEWCASTLE.

PRINCE LINE

CANADA & U.S.A. — BRAZIL — RIVER PLATE — BRAZIL
TRINIDAD — U.S.A. & CANADA
U.S.A. — SOUTH & EAST AFRICA — U.S.A.
U.S.A. — FAR EAST — E. CANADA — U.S.A
U.K. — MEDITERRANEAN — U.K.
ARGENTINA & URUGUAY — U.K.

For further information apply —

PRINCE LINE LTD. :: 56, Leadenhall St., E.C.3

NEW ZEALAND LINE

PASSENGER & CARGO SERVICES via PANAMA

Particulars from :
J. B. WESTRAY & CO. LTD.,
138 Leadenhall Street, E.C.3.
Tel. : AVEnue 5220

THE NEW ZEALAND SHIPPING Co. Ltd.

PORT LINE

U.K. to AUSTRALIA and NEW ZEALAND

NEW YORK to AUSTRALIA and NEW ZEALAND

PORT LINE LTD.

CUNARD HOUSE, 88, Leadenhall Street, London, E.C.3
'Phone : Avenue 1270. Telegrams : " Portships, Fen, London "

HOULDER BROTHERS & CO. LTD.

Shipowners, Insurance Brokers, Passenger & General Forwarding Agents (Sea and Air)
REGULAR FAST SERVICES to RIVER PLATE
From Liverpool, London, Bristol Channel & Antwerp and to SOUTH AFRICA

FREIGHT ENGAGEMENTS made and goods insured and forwarded By Sea and Air
TO ALL PARTS OF THE WORLD

Head Office : 53, LEADENHALL STREET, LONDON, E.C.3

Branch Offices at Liverpool, Glasgow, Newport (Mon.), Bristol, Swansea, Manchester, Hull, Southampton, Birmingham, Sheffield, Bradford, Hanley, Dundee, Cape Town and Sydney (N.S.W.).
Representatives in Argentina and Uruguay : Soc. Anon Houlder Brothers & Co. (Argentina), Ltd., Buenos Aires, Rosario, La Plata and Montevideo.
Brazil : Houlder Brothers & Co., Brazil, Ltd., Rio de Janeiro and Santos.

BRITISH & CONTINENTAL STEAMSHIP CO., LTD.

AMSTERDAM . ROTTERDAM . DUNKIRK . ANTWERP . GHENT & TERNEUZEN from and to LIVERPOOL & MANCHESTER
ANTWERP & GHENT from and to GLASGOW
GHENT from and to BELFAST

AGENTS

LIVERPOOL and MANCHESTER For Rotterdam, Amsterdam and Dunkirk Steamers : Wilson, Son & Co. For Antwerp, Ghent and Terneuzen Steamers : J. T. Fletcher & Co.
GARSTON : Ed. W. Turner & Son.
BARROW : James Fisher & Sons, Ltd.
GLASGOW : Clyde Shipping Co., Ltd.
BELFAST : G. Heyn & Sons Ltd., James Little & Co., (Belfast) Ltd.
ANTWERP, GHENT, TERNEUZEN : John P. Best & Co., S.A.
ROTTERDAM : P. A. Van Es & Co.: Phs. Van Ommeren (Rotterdam) N.V.
AMSTERDAM : Van Es & Van Ommeren Holland Steamship Co.
DUNKIRK : L. A. De Baecker.
LONDON : Phs. Van Ommeren (London), Ltd., Baltic House, 27, Leadenhall Street, E.C.3
PARIS : Phs. Van Ommeren (France) S.A., 11, Rue Tronchet, 8e

ORIENT LINE *to* AUSTRALIA

FOR PARTICULARS APPLY : ORIENT LINE
14 COCKSPUR ST., LONDON, S.W.1 Tel. TRA 7141
7 BISHOPSGATE, LONDON, E.C.2 Tel. MAN 3456
9 KINGSWAY, W.C.2 Tel. TEM 1258 or Agents

P&O and B.I.

● From United Kingdom and Continental ports to EGYPT, ADEN, RED SEA PORTS, INDIA, PAKISTAN, CEYLON, E. & S. AFRICA, MALAYA, CHINA, JAPAN, AUSTRALIA, etc.

For details of services, fares, etc., apply—
P. & O., 122, Leadenhall St., E. C. 3. • 14, Cockspur St. S. W. 1 • 9, Kingsway, W. C. 2 •
B. I. (Agents : Gray Dawes & Co.), 12, Leadenhall St., E. C. 3

BIBBY LINE

UNITED KINGDOM, CONTINENT, MARSEILLES, EGYPT SUDAN, CEYLON AND BURMA

All enquiries to —
BIBBY BROTHERS & CO., Martins Bank Building, Water Street, LIVERPOOL, 2.

WILSON LINE, HULL

Grams" WILSONS, HULL" 'Phone No. 16180 (20 lines)

REGULAR SERVICES

From Hull, London, Liverpool, Manchester, Middlesbro', Newcastle, Aberdeen, Swansea, Newport, Antwerp, Dunkirk, etc. ; to and from Norway, Sweden, Denmark, Poland, Baltic States, Portugal, Mediterranean Adriatic & Levant Ports, Egypt, India, Pakistan, Canada & United States.

PASSENGERS Passenger Services to Norway, Sweden, Denmark, Poland, Italy, United States and Canada, etc.

MARINE INSURANCE Insurances arranged on Cargo by our own and other steamers to and from all ports at current rates of premium.

Lighter Owners Forwarding Agents, Warehouse Keepers and Sworn Weighers Bunkers supplied.

For Rates of Freight, Fares, Insurance, Forwarding, etc., apply to—
ELLERMAN'S WILSON LINE, Ltd., HULL
or Branch Offices at Leeds, Sheffield, Manchester, Birmingham, Bradford and Grimsby ; or London Agents—THE UNITED SHIPPING CO., Ltd., 108, Fenchurch St., London E.C.3., London Brokers for Indian and Pakistan Trade—GELLATLY, HANKEY & CO., Ltd., Dixon House, 1, Lloyds' Avenue, London, E.C.3., or 62, Pall Mall, S.W.1.

THE BANK LINE

OPERATING THE FOLLOWING SERVICES:

AMERICAN AND INDIAN LINE—Calcutta, Chittagong, Rangoon and Colombo to Halifax, Boston, New York, Philadelphia, Baltimore and Norfolk (Va.).

AMERICAN AND INDIAN BRANCH LINE SERVICE—Rangoon, Chittagong, Madras, Madras Coast, Colombo and Malabar Coast, (filling up if necessary at Aden and Port Sudan) to Halifax, Boston, New York, Philadelphia, Baltimore and Norfolk (Va.).

BOMBAY AMERICAN LINE—Bombay to New York and Philadelphia.

AMERICAN AND ORIENTAL LINE—U.S. Atlantic and Pacific Coast ports to Philippines, Japan, China, Hong Kong, Indonesia and Malaya, returning to Canada and U.S.A. via Suez Canal.

CALCUTTA to RIVER PLATE PORTS—Chittagong, Calcutta and Other Indian Ports, Colombo and Malabar Coast to Brazil, Montevideo, Buenos Aires, Rosario and Bahia Blanca.

INDIAN CHILEAN LINE—Calcutta, Chittagong, Rangoon, Singapore and Indonesia to West Coast of South American ports. Calling at Colombo and Cochin when opportunity offers.

INDIAN AFRICAN LINE } Carrying passengers and cargo from
INDIA-NATAL LINE } Rangoon, Chittagong, Calcutta, other Indian ports and Colombo to East and South African ports and vice versa. (Vessels of the India-Natal Line also call at Madagascar when opportunity offers.)

ORIENTAL AFRICAN LINE—Carrying passengers and cargo from Shanghai, Hong Kong, Philippines, Saigon, Bangkok and Malaya to Mauritius, Reunion, East and South African ports and vice versa. Taking cargo on Through Bills of Lading from Japan.

U.S. GULF to AUSTRALASIA—Regular sailings from all U.S. Gulf ports to all ports in Australia and New Zealand. Calling at Trinidad *en route* when sufficient inducement offers.

U.S. GULF to SOUTH AFRICA—U.S. Gulf ports to South and East African ports

PERSIAN GULF—General Merchants, Export, Import and Ship Agents.

For Freight and Particulars apply to—

ANDREW WEIR
SHIPPING & TRADING CO., LTD.
19-21, BURY STREET, LONDON, E.C.3.

ANGLO BALTIC LINES

U.K. PORTS
to
GDYNIA/GDANSK & FINNISH PORTS

also

KLAIPEDA (Memel) LIEPAJA (Liban)
RIGA and TALLINN
when conditions permit, and sufficient inducement offers.

For further particulars apply to—

UNITED BALTIC CORPORATION, LIMITED,
158, Fenchurch Street London, E.C.3

Telegrams: "Orienteako," London
Telephone No.: Mansion House 3311 (8 lines)

MAC ANDREW LINE

SPAIN AND MOROCCO

Regular Services from LONDON, LIVERPOOL and Principal U.K. Ports

Express Service by fast Motorships from LONDON and LIVERPOOL to BARCELONA

HALL'S LINE To LISBON and GIBRALTAR

Express Service by fast Motorships from LONDON to GIBRALTAR

GLYNN LINE To WEST ITALY and SICILY

For Freight and Passage apply to—

MACANDREWS & CO., LTD.,
19, Leadenhall St., London, E.C.3.

Telephone: MANSION HOUSE 1543

Cunard Building, Water St., Liverpool, 3 Tel: CENTRAL 3922
BRANCH HOUSES at ★Barcelona, ★Madrid, ★Tarragona ★Castellon, ★Burriana, ★Valencia, ★Gandia, ★Denia ★Carthagena ★Almeria, ★Malaga, ★Saville and Bilbao

Branches with ★ act as Lloyd's Agents.

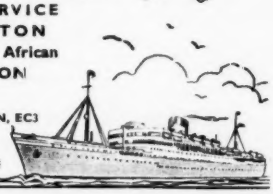
Agencies in all other principal ports

UNION-CASTLE LINE

to

South and East Africa

WEEKLY MAIL SERVICE
from SOUTHAMPTON
also Intermediate & East African Sailings from LONDON



Head Office:
3 FENCHURCH ST, LONDON, EC3
MAN 2550 (Passenger MAN 9104)
West End Passenger Agency:
125 PALL MALL, SW1 WHI 1911

ROYAL MAIL LINES

to **SOUTH AMERICA**
BRAZIL · URUGUAY
ARGENTINA
WEST INDIES
SPANISH MAIN
CENTRAL AMERICA
NORTH PACIFIC COAST

ROYAL MAIL LINES, LTD.
London: Royal Mail House, Leadenhall Street, E.C.3. America House, Cockspur Street, S.W.1.
Liverpool: The P.S.N. Co., Pacific Building, James Street, (2)

P. S. N. C.

LIVERPOOL, BERMUDA, BAHAMAS, CUBA, JAMAICA, PANAMA CANAL, WEST COAST OF SOUTH AMERICA.
Also via Bahia Blanca & Punta Arenas

THE PACIFIC STEAM NAVIGATION CO.
Pacific Building, James St., Liverpool, 2
London Agents: Royal Mail Lines, Leadenhall St. E.C.3

Freight: McGregor, Gow & Holland, Ltd.
16, St. Helen's Place, London E.C.3

CARGO FROM
Hamburg, Bremen, London & East Coast U.K. Ports
TO
U.S.A. GULF PORTS
BROWN, JENKINSON & CO., LTD., 113 Fenchurch Street, E.C.3.
WESTBOUND LOADING BROKERS

Galveston, Houston, New Orleans & Mobile to East Coast U.K. & North Continent

by ROPNER LINE

SIR R. ROPNER & CO. (MANAGEMENT) LTD.
Coniscliffe Road, Darlington.
Telephone 2811:

SIR R. ROPNER & CO. (LONDON) LTD.
22 St. Mary Axe, London, E.C.3.
or Telephone: AVE. 2153

STRACHAN SHIPPING CO.—New Orleans and all U.S. Gulf Ports.

EAGLE AVIATION LTD.

draws the attention of shipowners

to their fleet of Avro York aircraft recently increased to six in number. These aircraft are ideal for crew movements also for the transport of ships' spares. Maximum economy — Maximum speed.

Head Office:
29 CLARGES STREET, LONDON, W.1.
Tel: GROsvenor 6411 Cable: Speedlode Audley, London.

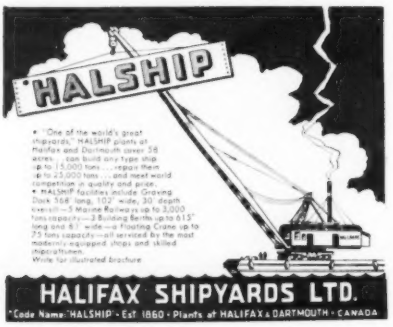
ADMIRALTY CHARTS

The LATEST EDITIONS of Charts, Plans and Sailing Directions published by the Hydrographic Dept., can be obtained from

J. D. POTTER, Admiralty Agent for Charts, Publisher of Nautical Books, and Bookseller.

145, MINORIES, LONDON, E.C.3. (*Tel. : Royal* 1369)

Large Stocks of Nautical and Technical Books of all descriptions.


HALSHIP
"One of the world's great shipyards," HALSHIP plants at Halifax and Dartmouth cover 58 acres . . . can build any type ship up to 15,000 tons . . . repair them up to 25,000 tons . . . and meet world competition in quality and price.
HALSHIP facilities include Graving Dock 568' long, 102' wide, 30' depth over sill — 5 Marine Railways up to 3,000 Tons capacity — 3 Building Berths up to 615' long and 81' wide — a Floating Crane up to 75 tons capacity — all serviced by the most modernly equipped shops and skilled organizations.
Write for illustrated brochure
HALIFAX SHIPYARDS LTD.
"Code Name "HALSHIP" - Est' 1860 - Plants at HALIFAX & DARTMOUTH - CANADA

YARROW
WATER TUBE
BOILERS

Have been selected for installation in the
CUNARD WHITE STAR VESSELS
MEDIA · MAURETANIA
QUEEN MARY · QUEEN ELIZABETH
and
CARONIA
YARROW & CO., LTD., SCOTSTOUN, GLASGOW

SHIP DELIVERY

We specialise in the delivery of any type of seaworthy craft

•

Telegrams. "Pedanderco." Telephone: Mans. Ho. 1921/2

PEDDER & MYLCHREEST LTD.

154/6, FENCHURCH ST., LONDON, E.C.3.

CIVIL SERVICE COMMISSION

THERE are vacancies for appointments as Engineer and Ship Surveyors and Nautical Surveyors (Male) in the Marine Survey Service of the Ministry of Transport.

Candidates must be at least 28 years of age on 1st January, 1951.

Candidates for posts of Engineer and Ship Surveyor must (a) possess either (i) an Extra First Class Certificate or Competency as Engineer in the Mercantile Marine or (ii) a First Class Certificate together with a University degree in Engineering or (b) be retired Naval Engineer Officers who have served on a regular engagement and who are in possession of a First Class Certificate of Competency or of Service.

Candidates for posts of Nautical Surveyor must possess an Extra Master's Certificate of Competency and must have been in command as Master of a foreign going merchant ship.

London salary scale £600 (at age 30 with small adjustments for new entrants above or below that age) by £25 to £900. Provincial rates are somewhat lower. There are higher posts on the salary scale of £900 to £1,150.

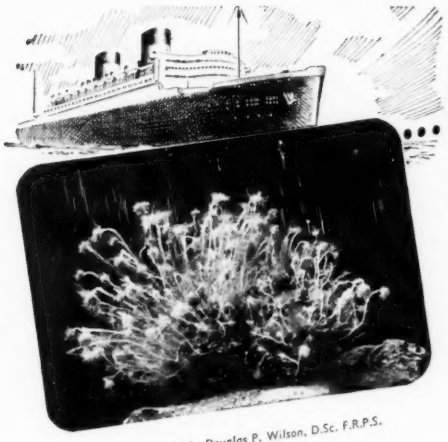
Further particulars and forms of application may be obtained by post from the Principal Establishment Officer, Ministry of Transport, Room 6029, Berkeley Square House, W.1., or on personal application to any Survey Office of the Ministry of Transport.

Completed application forms must be returned to the Principal Establishment Officer by 1st December, 1951.

Applicants who appear qualified will be summoned as soon as possible to an interview in London to test both technical ability and personal qualities. No written examination. Successful candidates will be offered appointment shortly after the interview.

INDEX TO ADVERTISERS IN THIS ISSUE

	Page
Airscrew Co., & Jicwood, Ltd.	A12
Alexander, W. H. J., Ltd.	A15
Anderson, Green & Co., Ltd.	A18
Anglo Baltic Lines	A19
Argentine Airlines	A6
Bank Line	A19
Bibby Brothers & Co.	A18
Blue Star Line, Ltd.	A17
Blundell & Crompton, Ltd.	A16
Bristol Aeroplane Co., Ltd.	A7
British & Continental Steamship Co., Ltd.	A18
British European Airways	A13
British Mexican Petroleum Co., Ltd.	A2
British Overseas Airways Corporation	A12
Brocklebank, Thos., & Jno., Ltd.	A16
Canadian Pacific Railway, Co.	A21
Cape Asbestos Co., Ltd.	A9
Cayzer Irvine & Co., Ltd.	A17
Clan Line	A17
Cory, Wm., & Son, Ltd.	Front Cover
Crewsair, Ltd.	A13
De Keyser Thornton, S. A.	A15
Dunlop & Ranken, Ltd.	Back Cover
Eagle Aviation, Ltd.	A20
Ellerman Lines	A17
Ellerman's Wilson Line, Ltd.	A18
Furness Withy & Co., Ltd.	A17
Gellatly, Hankey & Co., Ltd.	A16
Grayson Rollo & Clover Docks, Ltd.	A3
Halifax Shipyards, Ltd.	A20
Holorlist, Ltd.	A5
Houlder Brothers & Co., Ltd.	A18
International Paints, Ltd.	A21
Johnson & Phillips, Ltd.	A8
MacAndrews & Co., Ltd.	A19
Mercantile Dry Docks Co., Ltd.	A13
Metropolitan-Vickers Electrical Co., Ltd.	A11
Mory & Co., Ltd.	A15
Mountstuart Dry Docks, Ltd.	A6
New Zealand Shipping Co., Ltd.	A18
Orient Line	A18
Pacific Steam Navigation, Co.,	A19
Palm Line, Ltd.	A16
Pedder & Mylchreest, Ltd.	A20
P. & O. and B. I. Companies	A18
Port Line, Ltd.	A18
Potter, J. D.	A20
Prince Line, Ltd.	A17
Regent Oil Co., Ltd.	A14
Ropner, Sir R., & Co. (Management), Ltd.	A19
Royal Mail Lines, Ltd.	A19
Sabena (Belgian Airlines)	A6
Scindia Steam Navigation Co., Ltd.	A16
Shell Petroleum Co., Ltd.	A10
Stanhope Steamship Co., Ltd.	A21
Taylor Pallister & Co., Ltd.	A16
Thornycroft, John I., & Co., Ltd.	A4
Trans World Airlines	A4
Tyne Plywood Works, Ltd.	A2
Union-Castle Mail Steamship Co., Ltd.	A19
United Baltic Corporation	A19
United States Lines	A16
Weir, Andrew, Shipping & Trading Co., Ltd.	A19
Yarrow & Co., Ltd.	A20



Photograph by Douglas P. Wilson, D.Sc. F.R.P.S.

these passengers dont pay

"Tubularia" will take a free ticket, stick to the hulls and interfere with sailing schedules.

"International" Anticorrosive and Anti-fouling Compositions, produced by the co-operation of biologists, chemists and paint technologists, provide the best protection for all ships.

Registered Trade Mark

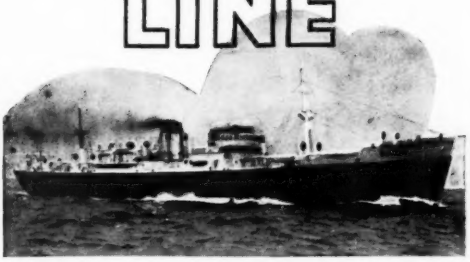
"INTERNATIONAL" — The Greatest Name In Marine Paints

International Paints Ltd

GROSVENOR GARDENS HOUSE, LONDON, S.W.1.
Telephone: VICtoria 3161 (10 lines)

Also at: Cardiff, Glasgow, Liverpool, Newcastle, Southampton, West Hartlepool, Hull and in all the world's principal ports.

STANHOPE LINE



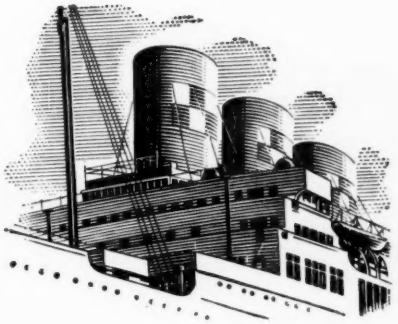
Stanhope Steamship Company Limited

Large Fleet of modern Cargo Vessels and Tankers, ranging from 3,200 tons to 16,600 tons deadweight.

MANAGERS : J. A. BILLMEIR & CO. LTD.
9 ST. HELEN'S PLACE, LONDON, E.C.3
Telephone: London Wall 7721 Telegrams: Billmeir, London
Branches: Cardiff, Hull, Newcastle-upon-Tyne and Glasgow

Fast Passenger and cargo services from

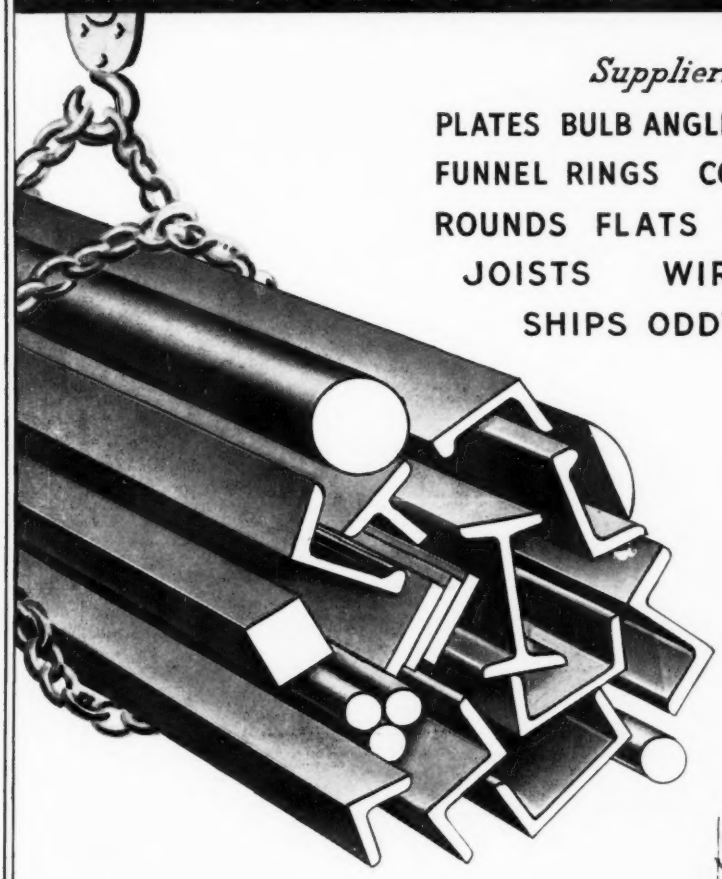
Britain to Canada



Canadian Pacific

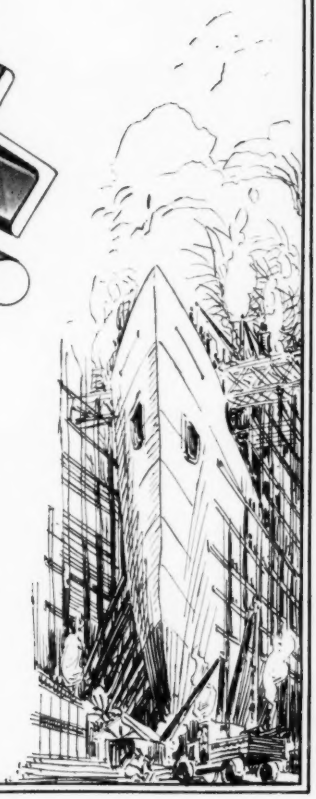
Trafalgar Square, W.C.2 (WHitehall 5100), or 103, Leadenhall Street, E.C.3 (AVEnue 4707) and Liverpool, Manchester, Bristol, Southampton, Birmingham, Glasgow, Belfast, Dundee, Paris, Antwerp, Rotterdam, Copenhagen and Prague

STEEL STOCKHOLDERS



Suppliers of

PLATES BULB ANGLES ZED BARS
FUNNEL RINGS CONVEX BARS
ROUNDS FLATS CHANNELS
JOISTS WIRE ROPES
SHIPS ODDWORK



DUNLOP
AND
RANKEN
LTD
LEEDS

Telephone 27301 (20 LINES) — *Telegrams* SECTIONS LEEDS

Published every Wednesday by the Proprietors, THE SHIPPING WORLD LTD., at Effingham House, Arundel Street, Strand, London, W.C.2, and Printed in Great Britain by the Press at Coombelands Ltd., Addlestone. Agents for Australia and New Zealand: Gordon & Gotch (A'sia) Ltd.; for South Africa: Central News Agency, Ltd. for Canada: Gordon & Gotch (Canada), Ltd.; for U.S.A.: The International News Co. Registered as a Newspaper.